Computer News 80

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EDITORIAL COMMENTS

RENEWAL TIME HAS COME This issue marks the close of a very exciting year for us here at CN80 and we hope it has been just as exciting for you too.

Renewals are starting to flow in and as those of you who have received your renewal notice know we have offered both a one year and a two year renewal opportunity to our current subscribers. The two year renewal is $40.00 for 24 months, a substantial savings of over 16% on the yearly renewal rate of $24.00. So far over 50% of the renewals we have received have been for the two years. Which means we have really made a commitment to you, and you to us, for the next two years at least. We are gratified by your vote of confidence in us and our commitment to be here not only in 1989, but in 1990 as well. We also hope that we will be here for many years beyond 1990.

We know money is sometimes tight and not everyone who would like to, can afford to go for the two year stretch. But we promise that there will be no difference in our service to you - one year or two year subscribers - you are all the same to us. Just another TRS-80 user who we intend to support for as long as the machines can be kept running, and that looks like quite a long time.

Now is probably the best time to explain our procedure for reflecting your renewal. Your mailing label has: first your account number which is the first five digits number, second your first issue date such as 88/01 (Jan. 1988 - Vol. 1 No. 1) followed by your last issue date such as 88/12 (Dec. 1988 - [this issue] Vol. 1 No. 12).

When your renewal payment is posted to your subscription account only the last issue date will change. If it was 88/12 and you have renewed your subscription for one year the last four digits with the slash should be 89/12 or 90/12 if your renewal is for two years, and so on.

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The reason for changing only your last issue date is fairly simple, we want to keep your first issue date intact because you are one of the first to subscribe to CN80. You not only played a very important part in our initial success, you've earned a special place in its future.

We are proud to honor all subscribers who have the first issue date in 1988 with the title INAUGURAL MEMBER a distinction reserved for readers like you. You were there in the beginning and we appreciate it.

As time Passes, and it is truly surprising how fast the years roll by, each Inaugural Member of CN80 will receive many special privileges, such as first chance on special software inventories that we locate. Special discounts on our series disks and PD publications, special deals on hardware and many more items and services, just as fast as we can dream them up or make the connections with third party suppliers.

By the way, if your last issue date reads 99/00 -- you are either a lifetime member or we goofed. Please check your mailing label carefully. We goof on Zip codes too, so be sure we have the right Zip code listed for you.

SPECIAL PLEA

When writing to us, and we hope that you will keep on doing so, even though we get way behind with answering as we are now, please do us a big favor -- that is when you write to us or the Open Forum and order merchandise at the same time -- Please put the order on a separate sheet of paper -- anything that has money attached to it should be on a separate sheet of paper from your letter and comments.

There is less chance of your order being overlooked or lost, and it is easier for us to route the paper work -- one sheet to the letter file and one sheet of paper to the order file. We thank you for your help in helping us serve you better.

DOUBLE 4 D SWEEPSTAKES

Seems like everyone is having one, sweepstakes that is. We thought it would be nice to enlist your help in capturing a few new subscribers and have a little fun at the same time. Besides if everyone else is having contests, why not CN80 too.

We are out to capture every owner of a Model I, III, 4 and 4P that we can and this is where you come in. Mailing lists that are now available are so old and out dated that they have become very expensive to use as promotional lists because of a high percentage of people who have moved and no longer have the same address as that which is on the list or they are no longer a TRS-80 user, or never were TRS-80 users.

Our reasoning is that each one of you knows at least one other TRS-80 user who has not as yet become a CN80 reader and we need your help to reach them -- but, not without some reward for your help. With your help we can grow to be even more supportive of all the TRS-80 users, with larger and better articles, more technical and hardware expansion help, and more coverage of each Model in every issue.

So how about it gang, why not get going and get your name in the pot -- as many times a you wish, as long as each entry with your name on it has the name of a new subscriber.

You might even find a friend who has his TRS-80 tucked away in some closet, and has missed the joy of using it, like Bob Martin (see his letter in this issue). We are placing this rather large bet on our winning team -- the loyal readers and supporters of CN80. We also have a very large box reserved to put your entries in - about the size of a refrigerator packing case. The drawing will be by a certified third party on May 1st. so you have plenty of time to round up all those strays who are not yet readers of CN80.

READERS WHO MISS THE POINT

Here are a couple of comments from letters we have received and although we do not want to offend the writers, we think that they have missed the point. What do you think?

One reader writes "suggestion: blow by blow descriptions of how a program works, right

down to what keystrokes to use, get boring in a hurry. If the reader of the article does not own the program, and extended keystroke listing will make no sense. Such extended descriptions belong in an instruction manual, not in a product review."

Another reader wrote "obviously a lot of your readers either do not read or understand what they read in the manuals."

Our thoughts are first, if you are bored with a particular article, stop right there and go on to something else that is of more interest to you. To make things simple and therefore understandable you have to give key by key stroke descriptions of what you are doing, or trying to explain.

Many articles and reviews are intended to be HOW TO DO IT articles and reviews. Most of the commercial products, which are now almost totally unavailable, have been reviewed and reviewed by all the glossy magazines when the programs were first introduced. When we review a product now, chances are quite a few people already own the product and don't need a review, but just might need some assistance in getting more out of it. Then there are those who are looking for a program to do a particular task, and it is nice to know just how a program does a certain task and how much work there is involved to accomplish that task before jumping in and buying a program. Or after buying a program that you think is going to do the job for you and then find out that it is more trouble than it is worth, or there is a better program that does the same thing without a lot of key strokes and complicated set up procedures.

If the key to our publication is and we hope it is, "how to get more out of what you already have" it requires a "how to do it approach".

Besides I wish that there were a mini manual written on every program I own. Boiled down to exactly just the applications that I use. Boy, that would sure save me a lot of time scrounging thru page after page in a manual looking for what I need. I sure could get more done with the time I spent reading manuals. Naturally we understand why manuals have to be written. They have to cover -- hopefully -- every aspect of a programs use and for every person that will ever purchase the program. It also has to cover as many applications as are possible for the program to do, and make available all the information that every hacker needs to modify the program. That's some giant task for the program manual writer.

For the reader who wrote that either we don't read or understand the manuals. That's right, and I am one of them too. We have eight to ten application programs all doing forty different things in our operation and we have manuals for LS-DOS, NEWDOS, TRSDOS 1.3, DOSPLUS4, MULTIDOS, BASIC, BASIC LEVEL II, NEW BASIC, DISK BASIC, ENHANCED BASIC VERSION 1, 2, 3, 4, 4P AND 4D — Single Sided, Double Sided, cassette, hard drive, communication, emulation, and service manuals for Model 1, 3, 4, non gate array, service manuals for Model 1, 2, 3, 4, 4P, 4D gate array. Did I leave anything out, you bet I did, about half of what's available for each machine including printer manuals, utility programs, printer codes and we could go on and on.

And why do I keep referring to my computer as a machine? Because that is exactly what it is! It is a machine the same as my car, my refrigerator or the drill press in my shop and nobody expects me to know much about the internal workings of those machines. When was the last time you sat down and read the operating manual on your refrigerator.

With out belaboring the point, we know that computer manuals and the knowledge of what's in them are quite a bit different than the manual that came with the refrigerator, or the car for that matter. But there are just so many hours to the day. Each day filled with just so much work that has to be done. Just so many things that my machine (computer) can assist me in getting done. And if some expert who has had the time to live with all these manuals and applications comes along, and he has had a chance to absorb all the instructions and knows the methods to manipulate these instructions and then comes along with a step by step, key by key instruction of just how to do something, I thank providence that I happen to run across just such an article, and I thank my lucky stars for the expert who took the time and trouble to write the article. But I am most grateful

for the fact that such a person is willing to share his knowledge with others.

By the way have you picked up a MS-DOS operating manual lately? About 500 pages of fine print, just for the DOS - What do you feel those users feel like.

The over abundance of our mail reads -- this is my prblem -- and please keep the answer as simple as you can.

So what do you think?

Coming in January -
THE MODEL ONE CORNER

We have been promised by Charles Marks of Wauchula, Florida that he will write some articles that share his long experience as a Model I user with us. We are looking forward to his articles.

Don Ady has also offered to contribute Model I articles which will begin to appear in the January issue.

The Model One Corner is also open to all who wish to contribute.

This issue has expanded again and we have so much to put in it that Open Forum will suffer a squeeze again, but a huge Open Forum is again promised in January. With lots of answers to problems that have been stacking up.

NEWS ITEMS

TANDY ANNOUNCES CASH PRIZES FOR 100 STUDENTS AND TEACHERS

High School students or teachers of math and science will be awarded two thousand five hundred dollars toward their expenses in fall of 1989, under the newly announced Tandy Technology Scholars Program. Texas Christian University will develop the criteria for the selection of students, teachers and schools. Students will receive the award during their senior year. Forms for awards for this year are being mailed to every high school in America. The awards are not restricted to students, teachers, or schools who only use Tandy Computers, but open to all. Tandy promises to do as much as possible to encourage school administrators to apply for the awards, and to nominate teachers and students.

If you are a parent with children in school, or if you are a student, teacher, or belong to a user group in your area, make sure that your schools are enrolled in this program. Check with your school administration to be sure that they have enrolled in the program. There is up to $350,000 to be given away for this school year and may be double that for 1989-90 term.

For more information and enrollment forms contact: William D. Gatis, Vice President of Radio Shack for Education, at Tandy Corporation, 1700 One Tandy Center, Fort Worth, Texas, 76102
or:
Dr. Edward G. Boehm, Jr. Vice Chancellor & Tandy Technology Scholars Project Director, Texas Christian University, Fort Worth, Texas 76129
or:
Phone 1-817-921-7808

We all have kids and grand children, and the teachers need all the help they can get, so please make sure your high school is enrolled by checking with your school children, their teachers and school administration to make sure they are enrolled in this program. -Ed.

WHAT'S IT WORTH

Model 4P are selling for $350 in our latest poll of ads.

Model 4 two disk drives are selling in the range of $400.00 to $300.00

Used hard drives for the Model 4s are almost nonexistent. Mainly because most hard drives can be reformated to use on other systems and are not being sold with the used computers.

New hard drives are ranging from $699 for a 20 meg. primary drive and $549 for a secondary drive.

These hard drive figures come from Hard Drive Specialists who are still building and shipping, hard drives for the TRS-80.

Hard Drive Specialists
16208 Hickory Knoll
Houston, TX 77059
713-480-6000

Aerocomp tells us they are shipping orders placed in March for hard drives and external drives and hopes to be caught up with their back orders in a couple weeks. They still have the 5meg available at $379.

If you like to use two different DOS's on your hard drive think about a removable cartridge hard drive. We use one with a SyQuest 5 meg. removable cartridge, one formatted to use CPM and one to use LSDOS, this saves a lot of energy and frustration in not having to download, and reformat for different programs. Check this out with PowerSoft/BI-Tech as it can come with a fixed hard drive and a removable cartridge in one case.

HINTS AND TIPS

A reader reminded us that we promised to give you instructions on building a label peeler and never did. Well here it is.

Take two 6 inch plastic rulers or any thin material in the same shape. Drill a small hole in each end of each ruler just far enough apart to clear the 4-1/2 wide backing paper on the single wide fan fold labels. Mount to any solid vertical wall with two screws and four small washers. Place the washers between the wall and between the two rulers, leaving a space between the wall, and one space between the two rulers.

Labels will peel off the backing paper when they are subjected to any surface that bends the paper 90 degrees or more. This arrangement is 360 degrees. Place your fan fold labels up through the space between the wall and the first ruler, then pull down with the labels passing thru the spaced formed by the first and outside ruler. Your labels will peel off just as fast as you want to pull.

This arrangement will work on a horizontal surface, however we used the wall and like it better. To be truthful once you get used to holding the labels with your right hand, with index finger extended and held stiff under the backing paper and the top of the labels held with the thumb, you can press down on the left upper corner of the label which will lift the corner — let it stick to the index finger of the left hand, transferring it to the envelope in a one handed motion — and it will peel just as fast as a peeler. With a little practice you can install labels with one hand, while passing the fan fold labels through the fingers of the right hand. No need for peelers then.

For more than one wide labels a longer peeler should work. We have found that the cost per label for one wide labels to be much less expensive to buy than the 2, 3, or 4 across, and takes no longer to print, which really doesn't make much sense. But because of the higher volume of the one wide labels sold they are cheaper to buy.

Here is a tip all the way from Pieter Plomp in Holland. Could it be that he is closer to the home of Santa Klaus?

DESIGNING AND PRINTING YOUR OWN CHRISTMAS CARD.

As an excellent, but little known graphical tool for creating cards, banners or invitations I like to use Print Master Plus from Unison World. They are (were) not only selling the IBM version, but also one for Kaypro II CP/M. Montezuma CP/M can read and transfer this format, and the Print Master runs without a hitch on the TRS-80 Model 4. It not only has drivers for Epson-alike printers but also for some Tandy DMP printers.

The package contains two diskettes. The files of the first have to be transferred to a minimum Montezuma DOS and the second disk which contains the fonts transferred to a data disk. So one needs at least two drives. More fonts (2x110) can be found on

the 2 (IBM) Art Gallery diskettes. These can be read and used for the Mod 4 too. Enjoy!
-Pieter J. Plomp, Holland

Unison World, International Publishing
PO Box 3826 Berkely, CA 94703

TALES FROM THE FILE CABINET
by Tim Sewell

As I continue to get things back in order (you wouldn't believe how much chaos a misplaced box or two can create) I did find the time to put the finishing touches on the Orchestra-90 catalog that I have been working on since Labor Day week. I must say that this is probably the most enjoyable catalog that I have yet to put together. There is a lot of fine music software floating around and I can now offer 69 disks worth of them. The music ranges from Classical to Jazz, Rock to Country, and Contemporary to the down right Bizarre. With the holidays just about upon us, there is 4 disks of fantastic Christmas music to choose from. If you own an Orchestra-90, this is without a doubt your best source for music files you will find. The catalog is available for the mere price of $2.00 and the purchase price is of course refundable.

I have been receiving several requests for Packet Radio software for The Model 3 and Model 4. This is an area that I lack all knowledge of and if any of you would like to steer me in the right direction of such software, I would appreciate it very much. Packet Radio software for the Model 4 seems to be most in demand right now.

WARNING

I guess the TRS-80 community is not immune to programs designed to destroy one's data. I have received reports of two programs that are designed to wreak havoc upon your computer system. PKARC36T/CMD is supposed to be a Trsdos version of the popular PKARC.COM program for MS-DOS. This program reportedly checks for how many drives you have in your system and then promptly erases your DIR/SYS and BOOT/SYS rendering your disks worthless.

SUPERMAN/CMD draws a "Superman" type character who flies across your screen and in the process, erases your directory so that your disk is once again worthless. The sad thing about SUPERMAN/CMD is that it was written by a rival sysop who wanted to crash his intended victim's BBS system. I personally have not come across any of these programs so I can't verify their existence. If anybody has come across these files please let me know and pass along copies.

This brings up a good point to make here. NEVER run a public domain program on your main system or hard drive without testing it first with a non-essential system. Unless you know that the source is a good one (The File Cabinet for instance Plug! Plug!), don't chance damaging your system with untested software.

Several programs that were discussed in past issues have had upgrades to them in recent months. The CUI database program by Alan Varga has had the sort and search routines improved so that the program runs smoother and faster. CUI is a nice database program and is worth looking for. Dave Krebbs sent me his latest incarnation of the CK4 checkbook maintenance program. A few minor bugs that existed have been hunted down and killed so the program purrs along quite nicely now. Mel Patrick has just released FastTerm 1.44 on to the world. The problem of extra characters on the screen due to line noise on cheaper modems has been eliminated along with a few very minor bugs. Mel's program is th ONLY Model 4 terminal program that supports 1K Xmodem file transfer. 1K Xmodem can save to time while downloading large files from a BBS. Mel has also added some new elements to his FastPlus II BBS program. FastPlus II version 2 is now available.

Speaking of Mel Patrick, He wrote to me and requested that I let you know that his fine list of software is still available. He also asked me to mention that a few people have written to him requesting the list but failed to give him a return address. These are mostly requests via Post Cards so if you wrote to Mel about his list and haven't received a reply, write to him again and be sure to include a return address or better yet, a return address label. Mel is also soliciting ideas for new software. If you

have any ideas for a program, why not drop Mel a note and let him know. His address is: Mel Patrick, 13699 70A Ave, Surrey, B.C., Canada, V3W 2J8. I know he loves to get mail.

I would like to take the time to thank everybody who has helped with my search for CLOAD and Softside cassettes and disks. I am still looking for March 1978 through October 1978 of CLOAD as well as the November and December 1984 issues. I would also like to find any of the printed fliers that came with the cassettes. Softside on the other hand is coming along fine but I'm still looking for a bit more. October 1978 through August 1981 is what I am in the greatest need of. Also, I am still looking for most of the smaller format magazines from October 1978 to July 1980. I am also offering a $20 reward for an ORIGINAL copy of 80-North West magazine Volume 1 Number 1 to fill out my collection. Write to me first if you have this issue.

The File Cabinet's Survey is still coming in on a steady basis. In the next few months I will be compiling the information and will be reporting it here. If you haven't received your survey form yet, send a Self Addresses Stamped Envelope to: The File Cabinet's Survey, P.O. Box 322, Van Nuys, Ca. 91408 and I will rush one out to you.

POST OFFICE BLUES

Boy, this move has not been easy as far as the Postal Service is concerned. For some strange reason, the main post office here in Van Nuys couldn't tell the difference between File Cabinet and THE File Cabinet. Much of my mail was returned to the senders with no forwarding address on file. After a call to the Post Master of my old post office, she offered to personally forward all of my mail until the problem has been straightened out. Things seem to be reaching me just fine right now but if you tried to contact me and there has been no reply in a long time then the chances are pretty good that your letter has been lost in the mail. If you have ordered and your check has NOT been cashed in the last few weeks then the chances are that your order is lost as well.

Well I think I have rambled on enough for the time being. I'm already 2 days late on the deadline and Stan is holding up the magazine for this. Here's hoping that express mail really works.

I promise there will be more good stuff in January. I'm taking all of Thanksgiving week off to write articles and work on the Model 3 catalog.

I wish you all the best this holiday season and may your every TRS-MAS wish come true (I've asked Santa for a new computer hutch. My old faithful has just popped it's second screw and I have cedar blocks holding it up right now).

See you in January. Until then...

Make Mine TRS-80 and have a Merry TRS-MAS.
-Tim Sewell

FYI I am typing this article on the latest version of LeScript (1.81) with the dictionary files. Look for my review of LeScript 1.81 in a future issue.

LOAD 80 UPDATE

Our negotiations with IDG Communications is still going on and we hope to have a firm decision to report in our January issue. We have heard from many of you that you are interested is some, if not all the Load 80 program series. We thank you all for the time you took to send us your comments. And it is now time to pass on just what is going on with the negotiations. We had been interested in these programs so that we could make them available to the TRS-80 users and most importantly so that they would not become lost to us forever. IDG has offered us their complete existing inventory of disks, with us acting as their distributor, without reproduction rights. If we sold their existing inventory we would have to go back to them for replacement stock. Our main interest orginally was to aquire the reproduction rights, along with this would go the copyrights that IDG holds on the programs. Without reproduction rights CN80 would only become a dumping ground for IDG to get rid of their existing inventory. If that is the case then we see it as "No Deal". IDG is currently reassessing

their position concerning the reproduction rights and we will let you know in January if they have decided to give us these rights along with their existing inventory of LOAD 80 disks.
-CN80

THREE HOLE PUNCH FOR CN80
Many readers have asked if we could have the CN80 supplied with three hole punch to put in a three ring binder. The cost to have this done at the printers is too great. It is an additional function for the printer and labor is expensive these days. But we have a suggestion, so far most heavy duty office punches will take CN80, as the issue grows the smaller punches may not. Our suggestion is to split the issue right down the middle, this will create single sheets in your binder, and almost any three hole punch will do the job. -Ed.

FASSET/BAS
A Random Access File Generator for
Fixed Asset Accounting
by: R H (Dick) Hollenbeck

The Model 4 has been around for about five years now, and there is quite a bit of excellent software supporting it. I think however, that the one area where professional programmers have not covered all bases is in the accounting field. Other than the standard general ledger packages and the home accountant type of application, few software packages are available for those interested in the financial accounting disciplines.

Accounting for a firm's fixed assets is one of the more mundane tasks of the company controller, but unless he wishes to use Multiplan, or a similar spreadsheet package, he's pretty well limited to manually posting various fixed asset ledgers. FASSET/BAS was written to allow the firm's controller to maintain his fixed asset ledgers on the Model 4.

Fixed assets are usually grouped into five catagories; ie: (1) Furniture, fixtures, and equipment, (2) fleet of vehicles, (3) buildings and land, (4) leasehold improvements, and (5) miscellaneous assets.

Not every firm will have all five catogories; occasionally a firm may have only one.

FASSET/BAS is completely menu/prompt driven and will at the user's discretion, create a random access file in any (or all) of the five listed catagories, add records to any of these files, up-date existing records as necessary, delete records as desired, and print out complete files. The filespec of each data file is EQPT, FLEET, BLDGS, LEASE, and MISC. No knowledgable office clerk should encounter any problem using FASSET/BAS.

THE CODE:

There is nothing worthy of note in FASSET/BAS' code - it's relatively straightforward and with the commented code, easy to follow. There are nine modules; one each for administrative purposes (lines 100 - 310), creating a file (lines 1000 - 1600), adding to an existing file (lines 2000 - 2710), up-dating an existing file (lines 3000 - 3500), printing a file (lines 4000 - 4640), removing a record (lines 5000 - 5640), exit to BASIC (line 6000), exit to DOS (line 7000), and a main driver (line 500 and lines 20000 - 65520) which controls program flow and contains most of the housekeeping routines. (Some of the subroutines in this section, may be of interest.)

As written, FASSET/BAS occupies 11,927 bytes. If you remove all comments, it will occupy slightly more than 8k bytes. Suggest that comments be removed from your "working copy."

You may need to change a few of the printer codes to suit your particular system. As provided, the codes are for Radio Shack's Line Printer V. I have two other printers, but the old boat anchor is still my favorite. Specifically, on lines 4600 and 4630:

LPRINT CHR$(31) denotes 'Begin elongated character mode.
LPRINT CHR$(27);CHR$(15) denotes 'Cancel condensed character mode.
LPRINT CHR$(30) denotes 'Cancel elongated character mode.
LPRINT CHR$(27);CHR$(14) denotes 'Begin condensed character mode.

Check these closely! When it comes time to print-out a file, you will need 128 print columns, and going to the condensed printing mode is the most convenient way to achieve this capability that I have found. At any rate, make any necessary changes so that the printer codes will work with your system.

When FASSET/BAS stops, it exits to either BASIC or DOS. If you are not happy with this scheme, revise lines 6000 or 7000 (or both) to meet your requirements.

As written, each data file (EQPT, FLEET, BLDGS, LEASE, and MISC) occupies one complete disk (1392 records, each 128 bytes long). Although I don't recommend it, you can combine files on one disk by changing the value of the variable O (oh) found in line 20000. If you do decide to try this, please be careful!

Should you wish to personalize FASSET/BAS, replace the asterisks (*) in line 65500 with your name (12 characters, max.).

USING FASSET/BAS:

I suggest that you place a "de-commented" copy of FASSET/BAS on a write-protected, LS-DOS system disk. Write protection is necessary to ensure that the program will not try to create a data file on your system disk.

Have as many freshly formatted disks on hand as data files you wish to create. From DOS ready, enter BASIC FASSET/BAS, or from BASIC ready, enter RUN "FASSET/BAS." The screen will clear, and in a few seconds you will see the main menu. Inasmuch as at least one of the data files (eg: EQPT) must be present in the system for any menu option other than number 1, the first order of business will be to create one of these data files. Take a "1" at the main menu, and another menu will appear and ask which of the five catagories of files you wish to work on. Take the appropriate number and ollow the prompts. In a few minutes, you'll have a blank data file. Note that if you take this option again with a partially filled data disk (one you've been using) you will wipe out all previously entered data - it's like erasing the file and starting all over again. Be careful!

To add information to the file you just created, take a "2" at the main menu, and follow the prompts. When you get to the data input screen, notice that the length of each data field is shown by a row of dots. FASSET/BAS will not allow you to make entries longer than the field, but you won't get into trouble if you try; it just won't accept input past the end of the field. You may wish to note field lengths. They are as follows:

1. Description ..... 50 characters.
2. Date acquired ..... 8 characters (mm/dd/yy).
3. Acquisition cost ..... 11 characters.
4. ID or Serial number ..... 12 characters.
5. Location code ..... 10 characters.
6. Accumulated depreciation ..... 11 characters.
7. Book value ..... 11 characters.
8. Remarks ..... 10 characters.

Although you do not have "easy access" to the record number field, you may be interested in knowing that it is 5 characters wide.

You can up-date data (correct data within a record) (menu option 3), print a complete file (option 4), remove records from within a file (option 5), exit to BASIC (option 6) or DOS (option 7). Just follow the menus and prompts, and you won't get into trouble. I do suggest that data files be up-dated and backed-up on a monthly basis (at the same time the financial statements are being prepared).

CLOSING THOUGHTS

Most of you have already concluded that I have not improved my elegance quotient since graduating from the Sledge Hammer School of BASIC Programming. In self-defense, please consider that FASSET/BAS works, and fills a void.

I'd be happy to hear from you regarding proposed improvements to FASSET/BAS and/or your comments. I hope that you don't have any trouble with it, but if you do, I'll try to help if you'll send me the particulars, and an s.a.s.e.

-R. H. Dick Hollenbeck

The FASSET/BAS program which is too long to be printed in the space that we have for listings in CN80 is available on the CN80 Disk Series Number 3, which will be ready to mail by the time this issue reaches you. As always our disk series is $5.00 each, including the disk and postage. Mr. Hollenbeck has requested that we handle the distribution of the program for him, and if you do have any questions you can contact directly or through CN80. -Ed.

PANASONIC'S DOT-MATRIX BARGAIN
by Mark Allen Reed

The Panasonic KX-P1080i, an inexpensive but powerful dot-matrix printer, is available at many computer stores and mail order outlets for just under two hundred dollars. It connects easily to TRS-80 Models I, III, and 4 using a standard TRS-80 printer cable, and it works capably and reliably with BASIC, DOS, and just about any word processing program you can throw at it.

FEATURES

The KX-P1080i offers five different type styles. Pica (ten characters per inch) and elite (twelve characters per inch) are the ones you'll use most often; in near letter quality mode, they look almost as good as characters produced by an electric typewriter. Semi-compressed (fifteen characters per inch) and compressed (seventeen characters per inch) will probably be reserved for spreadsheets or other printing jobs requiring a large number of characters per line. Proportional (varying number of characters per inch) is also available; unfortunately, the proportional typeface is so poor that you'll probably never use it.

Each of the above type styles can also be printed in double width. Additional printing features include underlining, italics, boldface, and super- and subscripts. The KX-P1080i can also print two sets of graphics characters from IBM's Personal Computer, although this feature will probably be of limited use to TRS-80 owners. Still, the box-drawing characters can be useful for designing forms.

In graphics mode, Panasonic's printer seems to faithfully emulate Epson's MX-80. (The screen dump routine included with Micro-Labs's high resolution graphics board works perfectly if you fool it into thinking it's dumping to an Epson.) Graphics density can vary from sixty dots per inch (480 dots per line) to 240 dots per inch (1920 dots per line), and the paper can be advanced as little as 1/216th of an inch at a time. With those capabilities, some expertise, and a lot of patience, artistic programmers could use the KX-P1080i to create very advanced black-and-white artwork.

The printer also allows you to design your own character set, if you stay within its limits. This feature won't allow you to print documents in Hebrew or Greek, but it could help you replace a letter or digit you don't like the look of.

THE PRINTER ITSELF

The Panasonic KX-P1080i is an attractive unit encased in a hard plastic shell. Interestingly, the plastic is the same off-white color of my TRS-80 Model 4D; the two look good together on the same computer desk.

Besides the usual on/off switch and paper advance knob, the KX-P1080i includes five additional controls on the outside of the machine. The switch on the upper left changes between friction feed (for single sheets of paper) and tractor feed (for continuous forms). The switch on the lower left allows you to select draft, near letter quality, or compressed printing modes. Three buttons on the lower left toggle the printer on- and off-line, advance the paper to the top of the next form, and advance the paper to the next line.

Finally, three LED's just above the on-line button light up when the printer is on, out of paper, or on-line (ready to receive information).

SOME COMPLAINTS

Since the KX-P1080i was introduced after most TRS-80 programs were written, it is not included as a configuration option in many word processing programs. The solution is to tell the program you're using a Panasonic KX-P1090; that should work in most cases.

Unfortunately, the KX-P1080i does not allow you to print super- or sub`scripts in near letter quality mode. That will disappoint people who need to print term papers, scholarly reports, or anything else with footnotes. Luckily, underlining, italics, boldface, and most other print enhancements are available in near letter quality mode.

Finally, the Panasonic's biggest disappointment is its user manual. That book looks as though somebody threw it together as quickly as possible, without bothering to proof-read it. It badly needs an index to help you find information quickly; the appendices at the back of the manual are not enough.

CONCLUSIONS

Overall, Panasonic's KX-P1080i offers excellent value in a dot-matrix printer. Its near letter quality fonts are superb, and it's very convenient to be able to change print modes with a front-panel switch.

Soon after we bought our KX-P1080i and connected it to the Model 4D at home, we decided to order a second one for the 4D at work. We now use it to print our monthly statements, as well as all our correspondence. It has worked for several months now without problems, and that's about the highest praise I can bestow upon a printer.
-Mark Allen Reed

We had to look twice at Mark's letter and his printout of this article to tell that it was not printed on a daisy wheel printer. The Near Letter Quality of this printer is very close to a print wheel- Ed.

TWO MODEL 4 FILTER PROGRAMS
by Mark Allen Reed

Problem number one: My printer's zeroes and oh's are almost indistinguishable. I wanted some way to print zeroes with slashes through them, as they appear on the computer screen, so that no one looking at my program listings could get confused.

Problem number two: When I type many numbers into the computer, I usually enter them using the numeric keypad. Unfortunately, there is no comma on the numeric keypad. I wanted some way to temporarily convert the keypad period to a comma. Then I wouldn't have to lift my hand from the keypad until I reached the end of a line.

It would have been easy to write two BASIC programs to solve my problems, but I would have had to change my work habits to accommodate them. Also, BASIC is too slow for the character-by-character translation they would need to perform. Clearly, the only thing to do was to write two machine language filter programs to do the job.

SLASHØ/FLT

Program listing one, SLASHØ/BAS, creates a printer filter program named SLASHØ/FLT. SLASHØ/FLT intercepts each character you send to the printer. If the character isn't a zero, it lets it through unchanged. But if the character is a zero, SLASHØ/FLT replaces it with a zero, backspace, slash combination.

To use SLASHØ/FLT, enter BASIC. Then type and run program listing 1. Finally, return to LS-DOS (by typing SYSTEM) and enter the following two lines:

```
SET *SZ SLASHØ
FILTER *PR *SZ
```

If you like SLASHØ/FLT and want to make it permanent, place the disk you use for booting into drive zero and type:

```
SYSGEN
```

SLASHØ/FLT works with BASIC and any program which uses the LS-DOS printer driver. Many word processors, such as LeScript and Allwrite, can be configured to use LS-DOS's printer driver instead of their own. Unfortunately, you will not be able to use SLASHØ/FLT with programs which use their own printer drivers exclusively.

COMMA/FLT

Program listing two COMMA/BAS, creates a keyboard filter program named COMMA/FLT. COMMA/FLT is a little more complicated than SLASHØ/FLT.

Here's how to use it. First, enter BASIC. Type and run program listing 2. Then, return to LS-DOS using the SYSTEM command. Finally, enter the following two lines:

SET *CM COMMA
FILTER *KI *CM

From then on, if you want to turn the period key into a comma, hold down the CLEAR, SHIFT, and C keys at the same time. To turn the period key back into a period, press CLEAR SHIFT C again... and so on. I think you'll find that COMMA/FLT is very useful whenever you need to type a lot of data intoyour computer. It's especially helpful when you type in programs such as SLASHØ/BAS and COMMA/BAS!

If you want to make COMMA/FLT permanent, place your booting disk in drive zero and type:

SYSGEN

COMMA/FLT will work with any program which uses LS-DOS's keyboard driver. I usually use it with BASIC, where it works fine.

Incidentally, although I've referred to LS-DOS 6.3 throughout this article, these filters should work unchanged under TRS-DOS 6.2, whether or not you've applied David Goben's T62DOSXT patches.

I hope these filters are as useful for you as they are for me.
-Mark Allen Reed
Reeds' House of Color
Glen Road Plaza
West Lebanon, NH 03784

At first glance you may ask; Why turn the period into a comma, when the comma key is right next to the period key on the keyboard. When writing a program with a lot of numbers followed by commas such as in these two programs it is easier for some to use the ten key numerical pad on the computer. Then you can see the real need for turning that period key into a comma. Marks input and programs will be greatly appreciated. However the slash zero program works fine on our dot matrix (Seikosha) printer, some coding changes are needed to make it work on a daisy wheel printer, we are asking Mark if he can rewrite his slash zero program for a daisy wheel printer and if he can we will provide that program listing for our readers who might find the program useful for their daisy wheel printers. -Ed.

READER'S INPUT/RESPONSE/REVIEWS

This letter will pick up more or less where I left off last September - with reviews of "my best" PD programs on the disk(s) enclosed. As mentioned in my letter dated September 09, 1988, one disk is for G.M. Ashville, NC (Vol 1 No 9 - September issue of CN80) which can be forwarded to him in the stamped disk mailer.

MODEL 4 PROGRAMS
A quick response to Tim Sewell's review of TSK! ver 1.0.1 in October's CN80, pgs 15 & 16...well done! I'd say he beat me to it, but I'd rather say he saved me some time, so I'll add to it here.
Tim wanted to be able to get a disk directory from within the program....he can, by moving the curser to the "Do a DOS Command" in the Menu and ask for the directory on any active drive.

When I stumbled across TSK! in my PD ventures, I was able to close a file on my useless Scripsit and got it to work (paid $100 for Scripsit - it didn't work, and I couldn't get the Radio Shack people to give me any help without spending more $. I was willing, but after two months of nothing I gave up!). My version 1.0.1 of TSK! didn't have the request for a donation, but I felt so good after reviving my Scripsit, that I wrote Brian McKay and Bruce Travers (c/o Zicron Industries, 778 Scarborough Golf Club Rd, Scarborough, Ontario, Canada. M1G 1J1), complimented them about it and asked if they had any other marketable programs I could learn from...Well, I now have TSK! ver 1.1.0 which also has "Copy Disk Sectors" and "Recover Killed Files". I purchased this "never released" program, along with its source code (Model III EDTASM format) with the ability to modify it to suit my own purposes - which I hope

to do after learning a little more (and getting the courage to try assembly language programming). The price was right and I also picked up a few more of their "class" programs. I'm sure that letter inquiries to them about their programs would result in a listing with descriptions and prices....and who knows, tell them you saw it in CN80, and maybe we can get something going for us TRS-80 die-hards.

SHELL 1.5 TO 2.0

I was fortunate enough to stumble across Stephen Milliken's SHELL/CMD programs when I jumped into the Fax Plux Public Domain Library (now in the possession of Tim Sewell's File Cabinet). Green as I was, it was a blessing to find such a disk manager(s) to eliminate the syntax of cumbersome Dos commands and replace them with single keystrokes and follow the prompts. The feature I liked best was the <L>List, which would list the program under the cursor to the printer or the screen, in ascii or hex, allowing me to burn through the document and text files, so I could pick & choose in high gear. Shell 1.5 was apparently the first version released as PD in 1985, followed by 1.6 thru 2.0 by mid '87.

Each version was enhanced and expanded, no doubt in response to registered, or interested user's requests. They are all /DOCumented, explaining in detail, how to install the program in as an ECI, extended command interpreter, in SYS13/SYS of Model 4 Dos's, as well as all the command features. They are designed for the 64K Model 4, and have grown drastically from a basic DOS command "Shell", to a killer disk manager (ver 2.0) that even MS-DOS's PC TOOLS still comes up short of. Besides the ability to display/print any drive directory, they can rename, mass copy and kill files, as well as format, backup, and map disks, and send the top-of-form to the printer. But they can also execute /CMD, JCL and BAS files, and DOS commands, set the FORMS filter and RS 232 parameters, write file descriptions, display SHELL Help and DOS Help information, and toggle a screen-blanking function after a determined time of keyboard inactivity....and that's most of the features of version 1.8! And while version 1.8 used plain and <shift> keys for its functions, version 2.0 has expanded to need the use of plain, <shift> and <clear> keys; moreover, version 2.0 displays the total number of bytes tagged for copying, has enhanced the ELIST and text editor functions to mention a few, and can be automatically set up in a MEMDISK to suit your needs. Stephen Milliken released his Shell(s) as FREEWARE and SHAREWARE (available from the File Cabinet) [this program is the bonus program on CN80 Disk Series Number One -Ed.) and requests a donation of $15 from regular users to help his development work. He still is interested in suggestions, and can be reached at 10 Cochato Park, Randolph, MA 02368.

Being a relative newcomer to the TRS-80 world (almost 400 run-time hours), I still haven't made full use of version 1.8. Having single sided drives in my Model 4P, I stripped down TRSDOS 6.2.x to make room for versions 1.5, 1.8, and now 2.0. I use 1.5 as my "worker" on a really stripped down DOS disk (75K free) to mass-copy files from one disk to another, because I don't know of a better way - yet. I acquired version 2.0 when it became available in an up-grade notice, but when I saw that it was included as a bonus in CN80's Disk Series (#1), I got with the program....Memdisk SHELL, here I come!

DNAME ver 1.0.0 DNAME/CMD is a quick-acting utility that changes the Disk Name. No muss, no fuss! It was released to PD by Colin Dunn 1/13/85 from Island Programming. When executed, it prompts you for the drive number of the disk in question, and then the 8-character name. (I put this, along with my other prized utilities, on my SHELL Operating disk)SCRNSV/CMD...A Screen Save Utility by Mark J. Quarles. When executed, it lets you know that it was successfully installed. The utility resides on the interrupts and watches the screen activity, blanking it after approximately 3 minutes the first time. The screen is restored after keyboard activity and blanks again, but more like in 30 seconds. SCRNSV N <enter> from DOS Ready removes the utility (this message is flashed to you when the utility was executed), and then warns you that if any drivers were installed below Screen Save, that they are now in unprotected memory. The program also comes with SCRNSV/SRC, its source code, so you can examine how it was put together.

PS/CMD & PSSETUP/BAS...Printer set-up utility PS/CMD is a user-defined printer set-up utility - to suit your printer's capabilities. PSSETUP/BAS is run first to configure the command buffer in PS/CMD. It contains the instructions and gives examples how to precede each printer code with a unique letter that you will use as a parameter when executing PS/CMD, either from DOS, or from SHELL. There's room for 30 to 35 individual commands, and you should take the time to do a little homework with your printer manual before you "do it your way"...Like using <U> to prec-ede the code for starting underlining, and <u) for stopping it. Be creative so its easy to remember - or go crazy and keep a crib sheet handy. <I chose this program because it is so similar to the way printer set-up commands are invoked in POWERSOFT's PowerScript (their enhancement of Scripsit), and I set them up identically.>

MODEL III PUBLIC DOMAIN PROGRAMS

TRS13PAT/BAS....is an excellent Patching program for TRSDOS 1.3 courtesy of J.F.A. Electronics. It contains 45 patches: some manditory bug fixes; some are enhancements; and some are optional modifications for efficiency as you might like. In any case, the program does it all for you. It presents you with information a screen at a time, gets you ready, explains the patches and prompts you for a <Y> or <N> to apply them. The <Y> answers become part of a DO file named PATCHES/BLD:0, that is automatically executed when you reset the computer per instructions. If you are a tad gun-shy (like I was), you can link your printer to your video ('DUAL (ON)') and answer <N>O to all the prompts, study the printout, and then have at it on round two. Remember, always patch a backup copy.....While the program is not as all encompassing as Henry Herrdegen's 174-Patch program (Vol 1 No. 9, September), it does include some of the patches that David Goben has been showing us, and is an excellent way of getting your feet wet in the Patch/DO/BLD world.

MENU/CMD...A Disk Manager for TRSDOS 1.3MENU/CMD was written and released to PD by Jim Doffing. The /DOC file completely explains how to install it on a system disk by deleting certain files and CREATEing a dummy file so you place it in the last two sectors of track 21, where it is invisible. Additional information explains how to 'AUTO MENU' so it will automatically come up when you boot the system disk. It displays disk directories at their respective number keystrokes, and performs the most often used DOS Commands with others: <C>opies, and <K>ills. <ENTER>ing with the cursor over a file can execute /CMD, /BAS and /DO files. <B> puts you in Basic, <D> in Debug, and <BREAK> returns you to DOS, where, <MENU> gets you back into the program. While nowhere near the power of Model 4's SHELL, MENU/CM gets the job done for Model III. Jim Doffing is interested in any changes to the MENU program and can be reached at 5602 N. 49th, Tacoma, Washington 98407. The program also comes with its /ASM source file so you can see how it was put together. Somehow I get the distinct feeling that CN80 is going to flush out a few more goodies for the Model III. I'm waiting...

CLAWDOS/CMD...Another Disk Manager for TRSDOS 1.3CLAWDOS/CMD was created and released to PD by S. Clawson in 1984. Run from TRSDOS READY, the program prompts you to enter a drive number for that disk's directory - then presents it to you with a keystroke command summary at the bottom of the screen. <D>ir allows you to get the Directory of another (or the same) drive. <C>ommand allows you to enter a DOS command and then returns you to CLAWDOS. After moving the cursor to a file in a directory you can either <K>ill it, or if it a /CMD or /BAS file, you can <L>oad it or <R>un it. <B> enters BASIC, if its on the disk, and <T> returns you to TRSDOS.I used CLAWDOS until I stumbled across MENU/CMD, primarily for the Copy function it had that CLAWDOS didn't. Like MENU, CLAWDOS also has a /SRC source file so you can see what makes it tick (if you understand Assembly Language).

DISKRNAM/BAS...is a Disk Renaming Utility from Basic Computing. When run, it tells you to place the disk to be renamed in drive 0 and <ENTER> (or <Q>uit). It then tells you the current disk name and prompts you to enter the new one. Just straight and to the point, period.

So much for my "best" Utilities, lets talk about NOW! I sent my October issue of CN80 to my hacker friends at Ferris Stat University so they could see what I said about them (page 24 concerning an "evolving" project for the Model 4), but they have already come across this publication, as well as TRSTimes (good news travels fast). Between the bunch of them, they have about 6 "round tuit" programs in various stages of dis-assembly. The ones that I could relate to concerned the printer driver for TRSDOS 6.2.x/LSIDOS 6.3 that would allow time for loading single sheets of paper without timing out and exiting the program. Another was a Terminate-Stay-Resident printer set-up utility that could be called on from within a program by a "hot key", with pull-down menus. I reminded them that people like me spend money for such "Shareware". I'm wondering if there are any other heavyweights out there in the TRS 80 community that have already whipped up such creations.....so maybe I can turn these guys loose on their other "round tuits"? Like something Tim Sewell says, Let's Help Us Make Ours TRS-80!

-Bob Martin, 14235 12th Ave. N.W.
Marne, Michigan 49435

Robert C. Martin is a Mechanical Design Engineer, with a BSME from the University of Cincinnati, 1967. His primary experience is in the design of special machinery.

His interest in computers started as a hobby when he purchased his Model 4P in '84 but waited to take it out of the box till '86. Now it has become a valuable tool for him "the use of which is limited only by one's imagination." His job changes in recent years has kept him "pushing the pencil" in companies that are still computer illiterate. But "Someday....."

We greatly appreciate Bob Martin's input and all the work it takes to write letters like this. We appreciate his concern for his fellow TRS-80 CN80 readers even more. His thoughtfulness was doubly expressed by sending us a disk along with the mailer with postage attached, which we immediately passed along to the recipient. Just plain Thanks doesn't seem to do it justice, but for a better expression. Thanks Bob!

And when can we hear from you again? -Ed.

THREE MODEL III PROGRAMS

By Henry H. Herrdegen

ALPHA SORTING LIST PROGRAM

(Model III, TRSDOS 1.3 or NEWDOS80)

This 'ALPHALST' program (see program listing three) permits you to type a list and give it a filename. It will be alphabetical sorted before saving it to disk, and you can print it in 1 to 4 columns. Input length is limited depending on number of columns selected. A list can be recalled, items added or deleted, another stored list can be merged, and the column printout rearranged. As is, 500 items is the maximum input, but that is very simply changed in a few lines of code.

The sort is in each column from top to bottom, from left to right column and per page. 50 lines per column plus a header with list name, # of items, date and page # is printed per page. The last page equalizes the column length, the right most column being a maximum of 3 items shorter then the others in a 4 column printout.

I have avoided any printer involvement with paper roll back to top of form for the successive column printing, paper feeds what they are on most printers. Rather the printing is in full lines, and the proper order of items is software controlled.

The startup menu gives you 4 operational choices: <S>, <R>, <M> and <A>, and my usual two quitting ones, <E>nd in BASIC or e<X>it to DOS.

<S>ave, the first op choice, permits you to type a new list. Choose the number of columns at the sub menu appearing below the main menu. The input prompts will then indicate the maximum string length permitted. You can change this column number anytime during the program, as this sub menu will pop up quite frequently. But if you try to print 4 columns with items entered to the maximum length for 3 column printing - I won't explain the mess the printer will make of it.

No length limits are set for 1 column, and, unless the input strings are short, this is the only choice which will give an unscrambled screen print. Choose a valid Filename at the prompt. If it is not valid, a

later check will prompt you to reconsider, without harming the file inputs. Enter your items at the input prompts, and enter a null string (<ENTER>) after the last entry. A prompt will ask if you are ready to sort, and if you have hit <ENTER> by mistake, you can continue inputs.

After sorting and storing (that's where the validity of the Filename is checked), you can see the sorted list on the screen or print it out at the "...hardcopy? (Y/N)" prompt. You will be prompted if the printer is not ready. Screen print will scroll 14 lines and pause for <SPACEBAR> input to continue, but only at the 1 and 2 column selection.

<R>ecall a stored list, again select a proper column No for printout. Best choose 1 for adding or deleting, it will give a clear screen print for checking. If this prompt seems repetitious, it is. But it sets and resets a number of internal flags, necessary for a smooth program flow at all possible choice combinations.

<M>erge lets you merge a stored list with the memory resident one, and <S>ave it under the resident, or a <N>ew name, which will leave the resident list remaining on the disk as it was recalled or stored at the <S> choice.

<A>rrange is required to print the list and to add or delete items. At the sub menu:
<A>dd brings the input prompt as in <S>, but with the next higher item number. Otherwise it acts the same. <D>elete puts a locked instruction in the top lines, shows the # of items in the file, and asks for the # item to be deleted. If you do not have a printout to count to it, guess. You can move thru the list up or down with the arrows, till you find the item. Press <D>, and a blinking star in the middle underneath the header will show you that the computer is working, even if it can take a while at a long list. All items are pulled up one number, and the total is changed. The next item appears on the screen. Scrolling past the last item will get a prompt asking if you want to scroll back up or go to the menu. Scrolling up past the first item goes to the menu by itself. <ENTER> does quit the deleting and gets to the hardcopy question, also showing the column selection. Go back to the menu and <A>, if you want to change it.
<P>rint gets the selection notice with the hardcopy question. At <N>, screen print, only 1 or 2 column selection will paginate with the <SPACEBAR>. <Y>, hardcopy, functions identical at all 4 selections.

The program will not end or exit without storing the last changes, if you somehow got back to the menu without storing. <ENTER> will get you back to it from almost all input prompts without harm.

-Technical Notes:-

At the printer ready check in L3000 I use the peek address common with NEWDOS80 instead the TRSDOS 'CMD"P"'. The 'Z=63' is the ready code for my DMP 200. If it is different for your printer, change it, or bypass the check altogether by deleting the 'GOSUB 3000:' in line 840.

To run under NEWDOS80, all you have to change then is the printer command 'CMD"Z","OFF"' to 'CMD"ROUTE CLEAR"' and delete 4 spaces after the REM sign in L1400, and 'CMD"Z","ON" in L3000 to 'CMD"ROUTE,DO,DO,PR"' and delete 8 spaces.

To cram more then 500 items in a list, change the numbers in lines 10, 610, 670, 1510, 1520 & 2100. On a 48K machine, the limit is about 900, before running out of memory and/or string space, depending on the length of your item strings. You will also have to change the "CLEAR" to 20000 in line 10.

"COMBine sorted LISTs" when 'Out of MEMORY' strikes.-
(48K Model III, TRSDOS 1.3)
(Program listing number four.)

I wrote this program a couple of years ago, when I run into "Out of Memory" problems, trying to combine two 500+ name, alpha sorted lists, in the course of a Red Cross Blood Donor drive. They were established with a slightly changed derivate of my ALPHALST, and "merging+sorting" shorter, about 150 to 200 items long lists was no problem, until the 48K limit struck.

The program is the same used then, I just

added the 4 lines for filename input and the corresponding variables. It will read any list stored on disk from a string array, only requiring the first string to be the number of items in the list. It is sort of a companion program to my ALPHAbetical LiSTing program.

The workings of it are simple: One item each is read from the two to be combined lists and compared. The lower ranking one is put into a third list. The next item is called from the list the put away item was from, to be compared with the remaining one, until both lists are EOF. The first item now is the combined number of items.

That's all there is to it. It just bypasses BASIC's sort utility, with its need for memory space. But the simple sort routine functions only with pre-sorted (thanks to good old CMD"O") lists. It also prints the selected items on the screen, so you can follow its working.

ProGraM RECord, with space for remarks.- (Program listing number five.)

Having copied and tried out a number of published Disk Directory programs, I was still frustrated with the lack of information the 8 digit Filename can provide. Although some programs can give you a total list of all your programs and the diskettes they are on, none that I found gave you the opportunity to add some remarks, to jog your memory what the program ABCDEFGH/BAS is all about.

So, on a rainy weekend I sat down and wrote a program the way I thought it should be: list all program names alphabetically, show the disk name or code they are on, and permit a short program description. After several metamorphoses, from DATA to Array File, fancy to simple string handling, Add, Change and Delete features, and from a single one to multiple disk files, I now have a very well working program, that someone else might be interested in.

It is written in Model III Basic, for a 48K machine, permitting a file with 300+ records. 300 is the figure with all records at maximum length. If all were short, just 1 or 2 words in Remarks, it could go to better than 500. For an average, the program is set to 400. With a change in the CLEAR 25000 string space, and the multiple (shorter) lists, this could be useful for 36K and 24K machines.

It does not read the Disk Directories, as most of the other programs do, but requires entries for each program, in order to permit individual comments. It permits you to display or print the list, change the disc code section if you have moved a program, and add or delete a full record. The program is short, 124 lines, and occupies about 7300 bytes. But it needs all the string space it can get, since strings are stored with all the spaces included. A previous format, which eliminated the spaces in the "Print String", converting it into a compressed "Store String" was less wasteful of disk storage space, (an average of 45 bytes/record versus 80) but took a lot of time, memory and garbage collections to convert strings, and required even more string space to do this. Memory on the Model III is more dear then disk space, therefore this version of my ProGraM RECord.

Now a short technical description of the main sections of the program:

Lines 10 - 80: Initiate the program by clearing string space, establishing the array's and various strings, used later to shorten program lines, print title and Filename input prompt. I do like a clean, easily readable program printouts, use spaces and try to limit every line to 80 characters to avoid wraparound. Also the date string is built up from the machine's TIME$ (L50), to use the date in the international YY MM DD format. If you do not like it that way, it's easily changed.

Lines 100 - 280 are the various Subroutines and messages. For instance, L100 is the INKEY routine with a blinking cursor (a CHR$(95) rather than a big blob), L120 converts to Caps if ou happen to type in lower case, 150 & 160 LPRINT the Hardcopy titles, and 180 searches for the requested record name. L230 starts the Disk store routine, 140 and 210 (also 330) are error messages, while 270 & 280 are simple timers.

L300 starts the load from disk routine with

an error trap if a non existing filename is put in, so the program does not crash.

Lines 400 - 540: The Menu. You can <S>ee the total list on screen or start with a specific letter (L 600), <P>rint a hardcopy, <A>dd records to the list, <C>hange disk codes <D>elete records, <L>oad another list, <M>ake a New list or Rename (duplicate) the existing one. To leave the program, you can remain in BASIC with <E>nd, or e<X>it to TRSDOS. (I hate to have to type CMD"S" or use BREAK, and wind up with a cluttered up screen!). If you have made some changes to the list, these last 4 choices will save the changed list before executing. (L 530).

Lines 600 - 740: An instruction line and column headings will remain scroll protected at the top of the screen while you move down the list with the DOWN arrow. Remarks longer then 30 characters will unfortunately wrap around on the 64 column screen, but to quickly locate a particular record, this is not too big a handicap. Record numbers are not printed on the hardcopy, in order to get more space for the remarks. You can go back to the <M>enu anytime, and at the end of the list, <ENTER> will start it from the top. Lines 800 - 880: To print hardcopy, we first check the printer status. The program uses the PEEK routine rather then the Model III CMD"P", to be more universal and because I edit my programs on NEWDOS80. The line for Model III BASIC would be: CMD"P",X$: IF X$=63 THEN... The 63 is the clear code for my DMP 200 and might have to be changed for your particular printer. The program prints a Title with the date and page #, as well as the column headings, 50 item lines/page, and a "cont'd." remark. The last page prints a item number statement and up to 53 records rather than starting a new page. Lines 900 - 930 handle the New/Rename routine. For <N>ew, the memory array is cleared (930). <R>ename will leave the old filename active and the file on the disk.

Lines 1000 - 1200: The <A>dd section display's the new record # and requests consecutive entries of Filename, Disk Code(s) and Remarks. All are limited in length, and this is indicated underneath the entry line with a text and a CHR$(94), a caret. Exceeding this length cancels the input, prints a message, and returns to the subject entry request. The filename is obviously limited to 12 characters, and I have allowed for 14 disk code spaces (3 - 4 digit codes) and 50 remark characters, to avoid wraparound on a 80 column printout.

After the Rem's entry, the string is shown as it will be stored, and if not correct, can be cancelled and repeated. Comma's are prohibited, (anything after it will be stripped when "printing" to disk.), and warnings about it are displayed. When the "Correct?" question has been answered with "Y", you will be asked if there are more additions. "Y" will go to the start of the ADD section, "N" to the SORT line 1190. The Program uses the built in CMD"O" routine, but any other sort routine could be inserted here. The IF-THEN-- in L1000 and line 1200 guard against overflow in the file and a "Subscript out of range" crash.

Lines 1300 - 1400: To change the Disk Code section, you input the record name, and then get a prompt (again with the max length shown) to type the new code(s). Accept question as before, and if correct, flag W is set and the menu comes back. At "N" you can repeat the entry.

Lines 1500 - 1660: To delete a record, these lines put a scroll protected instruction and advice on the screen. Answering the "Name of record" question will bring this record on the screen. If it's not the right one, arrow key's will go up or down thru the list. Pressing <D> will delete the shown record, decrement all following record numbers and return the "Name" question. <ENTER> at any time will bring the menu without any delete action. Lines 230 - 250: If any ADD or DELETE action has been taken, the total record number "N" had been updated and a flag "W" was raised, facilitating the saving of the altered list to disk at either <L>, <M>(N), <E> or <X> menu choice.

I have included some moving counters in LOAD, STORE and DELETE display's to liven up the screen while the computer is working away. On DELETE, this counter sometimes stops for "garbage collection". Be patient, (the announcement say's so too). I have not yet encountered a delay of much more then one minute, still an eternity when you sit and stare at the screen. Well,

there are limits to the Model III memory.

Enjoy the programs, and feel free to contact me with any comments or questions by mail to CN80.

-Henry H. Herrdegen

A MODEL 4 BASIC UTILITY FOR GENERATING AMORTIZATION SCHEDULES
by: R H (Dick) Hollenbeck

Everybody should have at least one amortization program in his bag of tricks. You never know when you will be able to dazzle someone with your brilliance just by having it available. And I hope that after looking at my AMORT/BAS, you'll consider adding it to your repertoire.

A great number of amortization schedule generators are available just for the asking, and they all do the job to some degree. Why then should you consider using AMORT/BAS? Well most of them aren't as accurate as AMORT/BAS, and don't have all the features; eg: Payment number/date coordination, optional hard copy, calendar year cumulative payment, interest, principal amounts, etc.. Give it a try - I think you'll like it!

THE CODE:

There's nothing truly noteworthy in the code. But I have included a scroll protect routine, and a formatted input routine that you may find interesting. Although I don't recall the authors, I do remember that both routines appeared some time ago in 80 Micro.

As provided, the program occupies about 9.7k bytes. By eliminating all REMarks, you can shrink the size to just over 8k. If space is tight it's probably worthwhile to delete the remarks on a working copy of AMORT/BAS.

The program was written in five modules. The first (lines 100 - 310) is the admin section. The input module occupies lines 1000 - 1110. Line 3000 contains the calculation section, and lines 4000 - 7020 provide for output. Finally, lines 500 and 20000 - 65520 comprise the main driver. This is the format that I use for most of my BASIC endeavors. If you leave the REMarks, you can easily see the structure, and you are right if you suspect that the main driver, with its housekeeping and other common routines, are maintained in a library. Line printer codes are for my old boat anchor, Radio Shack's Line Printer V (LPV). You may have to change these codes so that AMORT/BAS will work properly with your particular system. Look at lines 5277 and 6000.

The "LPRINT CHR$(27);CHR$(15)" sequence puts the LPV into the normal, 10 character per inch, mode. Similarly, in line 6020, the sequence "LPRINT CHR$(27);CHR$(14)" puts the LPV into the condensed character mode (15 characters per inch). By all means change these statements as necessary for your system line printer.

The only other possible required change has to do with which version DOS you are running. AMORT/BAS uses a five line scroll protect generated by the POKE command found in lines 5010, 5280, and 20010. If you are using LS-DOS 6.3 or TRSDOS 6.2.X, the command is correct as written. If you are using TRSDOS 6.1.X, you must change the address to 3013; ie: POKE 3013,13 (or 8). I am embarrassed to admit that I cannot find my old TRSDOS 6.0.X master disk, and therefore cannot guarantee where its scroll protect address, although I suspect it's the same as TRSDOS 6.1. If you are still running 6.0, and can't get AMORT/BAS running - send me a (copy of your) system disk, and I'll locate the address for you.

If you want to personalize AMORT/BAS, you can substitute your name for the asterisks (*) found in line 65510 (up to a maximum of twelve characters).

AMORT/BAS exits to DOS. If you are not happy with this scheme, change the code in line 20010 to meet your requirements.

USING AMORT/BAS:
Load the program from DOS Ready by entering BASIC AMORT/BAS, or from BASIC Ready by entering RUN "AMORT/BAS". Your screen will clear, and in a few seconds an overview screen will appear. Read the information and press

<ENTER> when you are ready to continue. When exiting AMORT/BAS, it is important to do so from the overview screen. Otherwise, you will probably have to re-boot your computer to clear the five line scroll protection. At any rate, pressing any <KEY> other than <ENTER> at the overview screen, will cause an exit. Just follow the prompts, and you won't get into trouble.

Assuming you have pressed <ENTER>, you will be presented with the input screen. Go ahead and enter the requested information. Don't worry if you make a mistake - you will be given an opportunity to make corrections before going on. Once you have completed data entry, and verified that it is correct, the screen will clear and you will be given the option of either screen-only or screen-&-line printer output. Again, just follow the prompts.

If you want to make a permanent record, just turn on and adjust your line printer before pressing <ENTER>. AMORT/BAS will take it from there. If you are interested in only one (or a few) year, don't turn on your printer. Just press <ENTER> and output will be directed to the screen only.

If you selected output to the screen only, output pauses at the end of each calendar year. If you wish to record that year, simply turn on your line printer and do a screen-dump (press <CTRL><:>), before continuing. After perusing or printing the year shown on the screen, continue to the next year by pressing <ENTER>, or return to the overview screen by pressing any other <KEY>.

Note that AMORT/BAS runs relatively slowly. If you are producing hard copy, once output starts appearing at the printer, go out and get yourself a cup of coffee (or whatever!), it's going to take 20 minutes or so to finish the run. The reason for this has to do with the way BASIC handles numbers, double precision calculations, and AMORT/BAS's method of eliminating fractional pennies from its calculations. AMORT/BAS may be off a penny or two, but no more. This is caused by my decision to round fractional cents up to the next whole penny. Most other amortization programs simply let these fractional cents continue to accumulate throughout the run thereby sometimes generating substantial errors.

After the run is complete, you will be returned to the overview screen. You may then exit or rerun the program.

CLOSING THOUGHTS:

As with all of my BASIC endeavors, AMORT/BAS is about as elegant as a sledge hammer. But it gets the job done.

If you have problems with AMORT/BAS, or suggestions for improvement, I'd like to hear them. I'll try to answer all correspondence provided you send along an s.a.s.e.
- R. H. Hollenbeck
This program is available on Disk Series #3.

OPEN FORUM

I enjoyed reading Gary Rambo's HIGH RESOLUTION GRAPHICS, PART TWO article in the October 1988 issue. I was looking forward to it, after having read his first article on the hardware. Now, I am not clear, however, whether I need to know or write Basic. How do the values get into the graphs? Is it a Basic program that one runs and it asks for data, values, etc. that one types in? Is it all explained, with no prior knowledge needed, except how to load it and then follow instructions? I am intrigued by "THE GRAFYX SOLUTION", but hate to spent money buying it, then have to learn Basic first. Also, what is the advantage or purpose of having four different resolutions? Could Gary or a reader elaborate on that, please? Thanks.
-Klaus Meinssen, 124 Fairway Avenue, Verona, N.J. 07044

There is a DBM program generator being sold for Model 4 called QUIKPRO+II. This product is written in Basic and could be useful for some simple DBM applications, particularly mailing lists and hobby inventories such as record collections. Upon using the program I found that many operational sequences in it are implemented without polish or consistency. Also, the

program is slow because it makes an extraordinary number of disk references.

During my first use of QUIKPRO I found myself continually asking "Why didn't he do this instead." or "Why did he forget to do that." etc. Upon examining the code, the answer to these questions became clear. It is an absolute marvel of patchwork, needless GOTOing and temporary file initiation all in an apparent effort to maintain constant line numbering and semi-compatibility across different BASIC dialects. Perhaps such a clumsy, confusing and disorderly mess is what one must write to be a commercial success with Basic but that doesn't offer much consolation to the buyer of it.

I have gone through the program and cleaned it up to a great degree for the Model 4 user. I have eliminated many of the disk references and added a few features which I know the original author would have wanted had he not had to live with his original program structure scheme. I did not, however, bother to fix up the so-called "self-documenting" feature of the program which I found too trivial to be useful.

I would like to make my changes available to CN-80 readers who have purchased QUIKPRO but I have to respect that it is a copyrighted program. I must have reasonable proof that the recipient of my improved version is in fact a QUIKPRO owner. Accordingly, to anyone who sends me their original copy of QUIKPRO together with an additional blank disk, a SASE, and $4.00 for handling, I will write my altered programs on the blank disk and return it together with their untouched QUIKPRO master.

Unfortunately, QUIKPRO comes on a disk with a copy protection scheme and I wouldn't blame anyone for not being eager to trust me with their one and only copy of it. However, the protection scheme is very simple to get around. Here is how you can make a backup of QUIKPRO.

Most of the QUIKPRO routines have been written on the disk using Basic's protected write, i.e., the SAVE with the "P" option. These must be LOADed and fixed by G. Dobbs' method given in CN80, Vol. 1, Num. 6, Pg. 13 then re-saved without the "P" option to a backup disk.

patch out for one particular program on the QUIKPRO disk. The directory lists a program named QUIKMENU/BAS. This is, in fact, a nonexistant program which the directory lists as being on cylinder 01. However, cylinder 01 has been deliberately left unformatted so that most copying or backup routines simply give up with a "File not found" or "Source disk error" or some such message. Do not try to load and re-save this program, just forget about it.

This non-existent program name is used by several of the QUIKPRO programs to test whether or not the disk is an original. These programs attempt to open the nonexistent file and if they don't get an appropriate error due to the presence of the unformatted track they abort back to the system.

After loading and unprotecting the various QUIKPRO programs, check the opening lines of code of each of them for a GOSUB which tries to open QUIKMENU/BAS. Simply REM this GOSUB before re-saving the programs and your backup will work just fine.

That's all there is to making a QUIKPRO backup for yourself. Of course, test out the backup by creating a simple DBM program before sending me your QUIKPRO original.

Regards,
Lynn Gallup
5932 Grove Street
Edina, MN 55436

Q: My Model 4 TRS-80 is about 3 years old, and several keys on the keyboard are slow to respond, many times letters do not show up on the screen and I have to go back and insert. I assume this is due to a poor contact, which ought to be replaced. This is particularly noticeable when I first begin typing; after a while it sort of disappears.

My question: If it is a matter of the contact, is the replacement of the contact not a relatively simple job, and if so, what items for replacement are required and what tools can be obtained to simplify the job?

(I imagine this is a pretty common problem,

but I haven't seen it show up in Computer New 80 as yet. Maybe everybody else is smart enough to replace bad contacts without requiring instructions? But I need help.

I appreciate greatly the exchange of information in the Open Forum and elsewhere in the News!
-W. D. B. Fort Worth, TX

A It is a common problem and you are right we haven't addressed it before in CN80.

Service and cleaning the key board require the removal of the keyboard assembly (that's the part under the keys, not the keys themselves) from the computer. This is not difficult after taking the computer housing off. Pull the cable connector from the keyboard assembly (on the model 4P the keyboard is separate, so to remove that key board assembly, you open the case by removing the screws on the bottom of the keyboard case.) To remove the contact mechanism from the keyboard assembly unit is a little more difficult, because you have to unsolder the four contacts on the underside of the keyboard assembly and remove the slip-ring clip that holds the contact plunger to the board. The key cap is a separate piece and is removed from the contact plunger by pulling up on the key cap (carefully). Once you have removed the plunger and contacts from the keyboard assembly you can clean the contacts with a rubber eraser, very fine emery cloth or other abrasive material. Check to see if the contacts are pitted, if not, or only pitted slightly they would not have to be replaced, only cleaned and polished.

The above is not a complete how to do it guide, but is intended to give you an idea of what is involved.

If replacement of the contacts are necessary then you can order them from Tandy National Parts Phone 1-800-442-2425.

You may need the part number for your computer to do this, and you may get a clerk that knows your computer. A part list is given in the Service Manual for your Computer, it may not be complete with all the internal parts that fit some assemblies that R/S sells.

Recent purchases of the latest computer service manuals from Tandy:

Part Number	For	Cost
MS-2602061	26-1061/1062/1063 Model III	$ 15.00
MS-2601067A	26-1067A/26-1067 Model 4 and Model 4 Gate Array	$ 51.84
MS-261080	26-1080 Model 4P, 4P Gate Array	$ 30.78

We did not find a part number for the key contact plunger and contact for the Model 4P, just the keyboard assembly number which is #879Ø53Ø. The Model 4 Keyboard is 879Ø524. You can guess what the replacement cost would be!

Another less costly solution for sticking keys on any computer. Remove the keyboard assembly and give it a bath with any NON-LUBRICATING (NO OIL) TV Tuner, or electrical contact cleaning solvent. This is available in spray cans at most RS or electronic stores. The cleaner is highly evaporative. And never, ever use WD40 anywhere near your computer or other electronic circuit equipment.

You do not want to attempt to use the solvent from the top of the keyboard, outside the computer. First, you can't get to the offending parts very well, and second you do not want to flush any peanut butter, jelly or other material into you computer case. A good cleaning with TV tuner, may free up the plastic sleeves and plunger parts that rub against each other in the process of pushing up and down when you are typing. Our recommendation is to try giving your keyboard assembly unit a solvent bath first. The solvent bath will generally solve the problem of sticking keys, before assuming you need to replace the contacts.

Q: Several readers have written asking about the XLR8er board, now available from Misosys and we have the following input as an update on the board.

A: I, too, tried the XLER8 from Misosys in a non-gate 4P. It worked well on some things, poorly on others. My biggest problem area was running LDOS 5.3. My system was almost unworkable. I spoke with Roy Soltoff about this several times. He seems to think the XLR8er will work as advertised with all gate array boards. It should work on all 4P machines, but you might have to mount the board using a shorter connecting cable and forego the convenience of mounting it in the modem slot if you have an older one. As for the non-gate 4s. Roy has been compiling a list of which motherboard revisions work and which do not. -P. B. Ft. Leonard Wood, MO

A: I am sending this small bit of information in case it may help -C. W. of Monticello, NY and his search for a RS-232-C board for his Model I.

As late as the January 1988 issue of 80 Micro, Montezuma Micro of Dallas Texas advertised a "Model 1 RS-232 Kit complete" for $89.00. There may be a good chance they still have this product.

As far as installation goes, if C.W's expansion interface has a 42-pin connector already there in the compartment where the RS-232-C board goes, he can easily install the board himself by positioning the board over the connector and securing it with 2 small bolts.

Page 6 of the TRS-80 RS-232-C Interface manual says that "If your Expansion Interface does not incorporate this connector, you must return it for proper installation of this connector and the RS-232-C. Any attempt to install this connector on your own will automatically void all warranty." (Of course, those 90-day warranties have long since expired.)

If C. W.'s expansion interface does not have this connector, perhaps it could still be obtained through Tandy's national parts service (1-800-442-2425) and installed in one of their repair centers.(?)
-D. K. B. Fabens, TX

Q: I recently subscribed to your magazine and enjoy it very much. It's nice to know that my Model 4 hasn't been completely abandoned and has some support. First of all, I would like to say that I am a user, not a programmer, so the questions that I ask may seem to be obvious to a programmer but not to me.

I recently bought some software from dear old Radio Shack for my computer and as they are phasing out Mod 4 stuff, I got them at a deep discount. One was Planner Calc and the other was Money Decisions.

I bought the LS-DOS 6.3 system and have converted all my previous software to run under it. There wasn't any problem, just copy the programs from TRSDOS 6.2 to LS-DOS 6.3 and away they went!

Comes now Money Decisions which is written in Basic by the Eagle Software Publishing Co. in 1984 for Tandy and has some type of an auto loader built into it. TRS-DOS 6.2 comes up and of course you can't use the correct date as it fails to recognize anything after 1987. After you put in a date, Basic Money1 (F=1) comes up and then the program loads and runs. But try as I may I cannot get the thing to work under LS-DOS 6.3.
-C. A. H. Cheyenne, WY

A: We are not sure on this one, but a suggestion comes to mind. Try installing the Money program on a disk that has the full LS-DOS system installed on it, it may be that the application disk you have only has a minimum system disk operating system installed, and only system files you have on it are enough to get you into BASIC automatically and then run the program.

If the Money program is a protected program, try purging the systems files off a disk then install the LS-DOS 6.3 files to the disk that has the Money program left on it. Use:
BACKUP :0 TO :1 (I,S,NEW)
with your stripped Money Disk in drive one and your LS-DOS system disk in drive zero.
(A BACKUP COPY OF THE ORIGINAL ONLY NEVER PLAY AROUND WITH ANY ORIGINAL DISK--REGARDLESS OF WHAT IT IS--ALWAYS MAKE A BACKUP DISK OF YOUR ORIGINAL DISKS AND STORE THE ORIGINAL AWAY SOMEWHERE SAFE)

We even do this with the disks that subscribers send us before we attempt to convert any text or letter to our type setting programs.

If the above doesn't work send us a copy to mess with as you suggest in your letter and we will try to figure it out, unless a reader who has the program has already figured it out and can let us in on the solution to the problem. -CN80

A: To D. H. of Akron, OH I know of at least three communications programs that can emulate a VT-100 terminal. Two of these, TELETERM-EM 4 and OmniTerm Plus 4 are in the 1989 Express Order Software Buyer's Guide from Tandy. The third is Mel Patrick's FASTERM. Fasterm is a shareware program ($15) that works well and has good docs if you pay the $15 and get complete docs. With the limited docs that you get with the free download of the program, its a little tough to get much out of the program. Fasterm version 13.8 is available on Compuserve (LDOS forum) and version 12 is available from The File Cabinet.
-D. K. Amherst, OH

Q: Does anyone have a patch for Multiplan 1.06 to make it boot with AutoRecalc OFF?
-R. V.B. Primghar, IA

Q: I am writing this letter on a Macintosh Plus. It is a very nice machine. The graphics are great and the different sizes of letterings are really nice, but it doesn't hold a candle to my Model 4. There are things that I can do with the '4' that the Macintosh is hardly capable of.

There is one thing that I am curious about, is there any kind of program that would convert CP/M to work with my LS-DOS 6.3 or TRSDOS 6.2.1.
-A. T. Lompoc, CA

Coming Next Month, a whole new list of Open Forum Questions - After the holidays are over all of our readers will have more time to dive in and dig up the answers. Till then have a *******MERRY TRS-MAS AND A HAPPY NEW-DOS-YEAR********

Program Listing Number One

SLASH ZERO FILTER PROGRAM By Mark Allen Reed

```
5 'SLASHØ/FLT and SLASHØ/BAS copyright (c) 1988 by Mark Allen Reed
6 '
1Ø 'DATA POKE format created by DATAPOKE/BAS
2Ø CLS:DEFINT A-Z:PRINT"BUILDING 'SLASHØ/FLT'":RESTORE
3Ø OPEN"O",1,"SLASHØ/FLT":L=9Ø
4Ø CS=Ø:L=L+1Ø
5Ø READ A$:IF A$="END"THEN CLOSE:END
6Ø IF LEFT$(A$,1)="-"THEN IF VAL(MID$(A$,2))=CS THEN 4Ø ELSE PRINT"Checksum
error in line"L:END
7Ø A=VAL(A$):PRINT#1,CHR$(A);:CS=CS+A
8Ø GOTO 5Ø
9Ø ''' DATA area '''
1ØØ DATA 5,6,83,76,65,83,72,48,1,2,Ø,48,62,1Ø6,239,-896
11Ø DATA 32,28,213,221,225,237,83,22,49,33,122,48,62,1Ø,239,-1624
12Ø DATA 62,1Ø1,239,253,2Ø3,2,94,32,1Ø,33,237,48,62,12,239,-1627
13Ø DATA 33,255,255,2Ø1,33,Ø,Ø,68,62,1ØØ,239,4Ø,5,33,2Ø7,-1531
14Ø DATA 48,24,235,34,13,49,253,33,59,49,17,58,49,183,237,-1341
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con't next page

```
15Ø DATA 82,68,77,253,11Ø,Ø,253,1Ø2,1,124,181,4Ø,15,94,35,-1435
16Ø DATA 86,235,9,235,114,43,115,253,35,253,35,24,231,237,91,-1996
17Ø DATA 13,49,33,58,49,1,48,Ø,237,184,235,62,1ØØ,239,35,-1343
18Ø DATA 221,54,Ø,7Ø,221,117,1,221,116,2,33,Ø,Ø,2Ø1,83,-134Ø
19Ø DATA 1Ø8,97,115,1Ø4,32,9Ø,1Ø1,114,111,32,8Ø,114,1Ø5,11Ø,116,-1429
2ØØ DATA 1Ø1,114,32,7Ø,1Ø5,1Ø8,116,1Ø1,114,1Ø,32,32,99,111,112,-1257
21Ø DATA 121,114,1Ø5,1Ø3,1Ø4,116,32,4Ø,99,41,32,49,57,56,56,-1125
22Ø DATA 32,98,121,32,77,97,114,1Ø7,32,82,1Ø1,1Ø1,1ØØ,1Ø,32,-1136
23Ø DATA 32,1Ø2,111,114,32,1Ø2,114,1Ø1,1Ø1,32,1ØØ,1Ø5,115,116,114,-1391
24Ø DATA 1Ø5,98,117,116,1Ø5,111,11Ø,1Ø,13,72,1Ø5,1Ø3,1Ø4,32,1Ø9,-131Ø
25Ø DATA 1Ø1,1Ø9,111,114,121,32,1Ø5,115,32,11Ø,111,116,32,97,118,-1424
26Ø DATA 97,1Ø5,1Ø8,97,98,1Ø8,1Ø1,33,13,77,117,115,116,32,98,-1315
27Ø DATA 1Ø1,32,1Ø5,11Ø,115,116,97,1Ø8,1Ø8,1Ø1,1ØØ,32,117,1,71,-1314
28Ø DATA Ø,49,115,1Ø5,11Ø,1Ø3,32,83,69,84,33,1Ø,13,24,13,-843
29Ø DATA Ø,Ø,6,83,76,65,83,72,48,Ø,Ø,Ø,Ø,32,5,-47Ø
3ØØ DATA 121,254,48,4Ø,12,221,229,221,42,22,49,62,2Ø,239,221,-18Ø1
31Ø DATA 225,2Ø1,2Ø5,33,49,14,8,2Ø5,33,49,14,47,2Ø5,33,49,-137Ø
32Ø DATA 2Ø1,37,49,46,49,51,49,56,49,Ø,Ø,2,2,Ø,48,-639
33Ø DATA END
```

Program Listing Number Two

TURNING THE PERIOD KEY INTO A COMMA

```
5 'COMMA/FLT and COMMA/BAS copyright (c) 1988 by Mark Allen Reed
6 '
1Ø 'DATA POKE format created by DATAPOKE/BAS
2Ø CLS:DEFINT A-Z:PRINT"BUILDING 'COMMA/FLT'":RESTORE
3Ø OPEN"O",1,"COMMA/FLT":L=9Ø
4Ø CS=Ø:L=L+1Ø
5Ø READ A$:IF A$="END"THEN CLOSE:END
6Ø IF LEFT$(A$,1)="-"THEN IF VAL(MID$(A$,2))=CS THEN 4Ø ELSE PRINT"Checksum
error in line"L:END
7Ø A=VAL(A$):PRINT#1,CHR$(A);:CS=CS+A
8Ø GOTO 5Ø
9Ø ''' DATA area '''
1ØØ DATA 5,6,67,79,77,77,65,32,1,2,Ø,48,62,1Ø6,239,-866
11Ø DATA 32,28,213,221,225,237,83,27,49,33,122,48,62,1Ø,239,-1629
12Ø DATA 62,1Ø1,239,253,2Ø3,2,94,32,1Ø,33,243,48,62,12,239,-1633
13Ø DATA 33,255,255,2Ø1,33,Ø,Ø,68,62,1ØØ,239,4Ø,5,33,213,-1537
14Ø DATA 48,24,235,34,19,49,253,33,92,49,17,91,49,183,237,-1413
15Ø DATA 82,68,77,253,11Ø,Ø,253,1Ø2,1,124,181,4Ø,15,94,35,-1435
16Ø DATA 86,235,9,235,114,43,115,253,35,253,35,24,231,237,91,-1996
17Ø DATA 19,49,33,91,49,1,75,Ø,237,184,235,62,1ØØ,239,35,-14Ø9
18Ø DATA 221,54,Ø,69,221,117,1,221,116,2,33,Ø,Ø,2Ø1,8Ø,-1336
19Ø DATA 1Ø1,114,1Ø5,111,1ØØ,32,116,111,32,67,111,1Ø9,1Ø9,97,32,-1347
2ØØ DATA 75,1Ø1,121,98,111,97,114,1ØØ,32,7Ø,1Ø5,1Ø8,116,1Ø1,114,-1463
21Ø DATA 1Ø,32,32,99,111,112,121,114,1Ø5,1Ø3,1Ø4,116,32,4Ø,99,-123Ø
22Ø DATA 41,32,49,57,56,56,32,98,121,32,77,97,114,1Ø7,32,-1ØØ1
23Ø DATA 82,1Ø1,1Ø1,1ØØ,1Ø,32,32,1Ø2,111,114,32,1Ø2,114,1Ø1,1Ø1,-1235
24Ø DATA 32,1ØØ,1Ø5,115,116,114,1Ø5,98,117,116,1Ø5,111,11Ø,1Ø,13,-1367
25Ø DATA 72,1Ø5,1Ø3,1Ø4,32,1Ø9,1Ø1,1Ø9,111,114,121,32,1Ø5,115,32,-1365
26Ø DATA 11Ø,111,116,32,97,118,97,1Ø5,1Ø8,97,98,1Ø8,1Ø1,33,13,-1344
```

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```
27Ø DATA 77,117,115,116,32,98,1Ø1,32,1Ø5,11Ø,115,116,97,1,1Ø6,-1338
28Ø DATA Ø,49,1Ø8,1Ø8,1Ø1,1ØØ,32,117,115,1Ø5,11Ø,1Ø3,32,83,69,-1232
29Ø DATA 84,33,1Ø,13,24,25,Ø,Ø,5,67,79,77,77,65,Ø,-559
3ØØ DATA Ø,Ø,Ø,Ø,221,229,221,42,27,49,62,2Ø,239,221,225,-1556
31Ø DATA 2Ø1,48,242,2Ø5,32,49,192,229,245,225,254,227,32,16,58,-2255
32Ø DATA 31,49,238,1,5Ø,31,49,229,241,225,246,1,62,Ø,2Ø1,-1654
33Ø DATA 58,31,49,183,32,4,229,241,225,2Ø1,124,254,46,32,247,-1956
34Ø DATA 38,44,24,243,36,49,47,49,58,49,63,49,74,49,Ø,-872
35Ø DATA Ø,2,2,Ø,48,-52
36Ø DATA END
```

Program listing number Three

ALPHALST/PGM
by Henry H. Herrdegen

```
1   ALPHAbetical (sorting) LiST program, by Henry H. Herrdegen.
2   (84 11 Ø9). Last change: 88 Ø9 Ø4.            on Disk:
1Ø   CLEAR 1ØØØØ: DIM A$(5Ø2): DEFINT A-Z: DEFSTR D,E,K,S,U
2Ø   S=CHR$(32): E=CHR$(13): U=CHR$(91): D=CHR$(1Ø)
3Ø   DT=MID$(TIME$,7,3)+LEFT$(TIME$,2)+" "+MID$(TIME$,4,2)
1ØØ  POKE 16916,Ø: CLS: L=Ø: P=Ø: PG=Ø: N=1'                  MENU
11Ø  PRINT TAB(19) "Alpha sorted List.": PRINT TAB(18) STRING$(2Ø,"-")
12Ø  PRINT TAB(1Ø) "(With hardcopy, if selected at prompt.)": PRINT
13Ø  PRINT " Do you want to:": PRINT TAB(9) "type and <S>ave a new list,"
14Ø  PRINT TAB(18) "<R>ecall a stored list,"
15Ø  PRINT TAB(18) "<M>erge a stored list to the resident list,"
16Ø  PRINT TAB(15) "re <A>rrange the list in memory,": PRINT
17Ø  PRINT TAB(18) "<E>nd into BASIC,": PRINT TAB(14) "or e<X>it to TRSDOS?"
18Ø  K=INKEY$: IF K="" THEN 18Ø ELSE GOSUB 35ØØ
19Ø  IF K="S" THEN F$="": I=Ø: X=Ø: F=1: GOTO 3ØØ
2ØØ  IF K="R" THEN F$="": X=1: F=2: GOTO 3ØØ
21Ø  IF K="M" IF X<>Ø THEN FR$=F$: F$="": F=2: N=Ø: GOTO 3ØØ ELSE 23ØØ
22Ø  IF K="A" IF X=Ø THEN 22ØØ ELSE B=1: GOTO 4ØØ
23Ø  IF F=1 IF K="E" OR K="X" GOSUB 17ØØ
24Ø  IF K="E" THEN CLS: END ELSE IF K="X" THEN CLS: CMD"S" ELSE 18Ø
3ØØ  CLS: PRINT @21Ø, "Enter the name of the file: ": IF F=2 THEN 32Ø' FILENAME
31Ø  PRINT "  (you will overwrite a previous file with the same name!)"
32Ø  PRINT: PRINT: PRINT TAB(26) CHR$(27);: ON ERROR GOTO 25ØØ
33Ø  INPUT F$: IF F$="" THEN 1ØØ ELSE IF F=2 GOSUB 15ØØ
34Ø  IF ERL=17ØØ GOSUB 17ØØ: ON ERROR GOTOØ: GOTO 8ØØ
4ØØ  PRINT: PRINT TAB(12) "Select <1>, <2>, <3> or <4> columns."'  SUB MENU 1
41Ø  PRINT " (2 to 4 columns are for hardcopy, may scramble screen display.)";
42Ø  IF B=Ø THEN PRINT: GOSUB 33ØØ
43Ø  K=INKEY$: IF K="" THEN 43Ø ELSE IF K=E THEN 1ØØ ELSE V=VAL(K)
44Ø  IF V<1 OR V>4 THEN 43Ø ELSE IF V=1 THEN M=3
45Ø  IF V=1 AND B=Ø GOSUB 34ØØ
46Ø  IF V=2 THEN M=4: A=4Ø ELSE IF V=3 THEN M=6: A=26 ELSE IF V=4 THEN M=8: A=2Ø
47Ø  GOSUB 36ØØ: IF B=Ø GOSUB 37ØØ: GOTO 6ØØ
5ØØ  PRINT: PRINT TAB(8) "Do you want to:": PRINT'           SUB MENU 2
51Ø  PRINT TAB(25) "<A>dd to the list,": IF V=1 GOSUB 34ØØ ELSE GOSUB 33ØØ
52Ø  PRINT: PRINT TAB(22) "or <D>elete items and re-store list,"
53Ø  PRINT: PRINT TAB(22) "or <P>rint it only?";: B=Ø
54Ø  K=INKEY$: IF K="" THEN 54Ø ELSE GOSUB 35ØØ
55Ø  IF K="A" THEN IL=X+1: CLS: GOTO 61Ø
```

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```
56Ø  IF K="D" IF X=Ø THEN 22ØØ ELSE CLS: PRINT: GOTO 18ØØ
57Ø  IF K="P" GOSUB 32ØØ: GOTO 8ØØ ELSE IF K=E THEN 1ØØ ELSE 54Ø
6ØØ  CLS: IL=1'                              DATA ENTRY
61Ø   FOR I=IL TO 5ØØ
62Ø   X=X+1: PRINT "Enter Item #" I TAB(16) ": ";: IF V=1 THEN 64Ø
63Ø   PRINT: PRINT TAB(A+16) CHR$(94): PRINT TAB(19) STRING$(2,27);
64Ø   LINEINPUT A$(I): IF V<>1 AND LEN(A$(I))>A-2 THEN A$(I)=LEFT$(A$(I),A-2)
65Ø   IF A$(I)="" AND X=Y+1 THEN 1ØØ
66Ø   IF A$(I)="" THEN A$(I+1)="": A$(I+2)="": X=X-1: I=I-1: GOSUB 31ØØ
67Ø   F=1: IF X>5ØØ THEN 21ØØ ELSE NEXT
7ØØ  IF I=Ø THEN 1ØØ ELSE CMD"O",X,A$(1)'                    SORT
71Ø  A$(Ø)=STR$(X): Y=X: IF F=1 GOSUB 17ØØ
8ØØ  POKE 16916,Ø: CLS: GOSUB 36ØØ'                    PRINT LIST
81Ø  PRINT @2ØØ, "Do you want hardcopy - Y/N ? (<ENTER> --> Menu.)"
82Ø  K=INKEY$: IF K="" THEN 82Ø ELSE GOSUB 35ØØ
83Ø  IF K=U AND J THEN 191Ø ELSE IF K=E THEN J=Ø: GOTO 1ØØ
84Ø  IF K="Y" GOSUB 3ØØØ: FP=1 ELSE IF K<>"N" THEN 82Ø
85Ø  IF K="Y" AND J THEN 4ØØ
86Ø  CLS: C=INT((X-1)/V)+1: IF C>5Ø THEN C=5Ø
87Ø  R=INT((X-1)/(C*V))+1
88Ø  PG=PG+1: PRINT TAB(6) "List `"F$"' with" X "items:";: POKE 16916,1
89Ø  IF FP THEN PRINT TAB(46) DT TAB(56) "pg:" PG: PRINT ELSE PRINT
9ØØ  IF V=1 GOSUB 1ØØØ ELSE IF V=2 GOSUB 11ØØ
91Ø  IF V=3 GOSUB 12ØØ ELSE IF V=4 GOSUB 13ØØ
92Ø  I=I+C: P=P+(C*V): IF R=PG THEN 14ØØ
93Ø  IF FP THEN LPRINT STRING$(13,1Ø)
94Ø  C=INT((X-1-P)/V)+1: IF C>5Ø THEN C=5Ø
95Ø  GOTO 88Ø
1ØØØ  FOR I=P+1 TO X: PRINT TAB(3) A$(I): IF FP=Ø THEN L=L+1'     PRT 1 COL
1Ø1Ø   IF I=P+C AND FP RETURN ELSE IF L=14 GOSUB 143Ø
1Ø2Ø  NEXT: GOTO 146Ø
11ØØ  FOR I=P+1 TO X: IF FP=Ø THEN 112Ø'               PRT 2 COL'S
1111   PRINT TAB(1) A$(I) TAB(1+A) A$(I+C): IF I=P+C RETURN ELSE 115Ø
112Ø   IF X/2<>INT(X/2) THEN W=1: Z=Ø ELSE W=Ø: Z=1
113Ø   PRINT TAB(3) A$(I) TAB(3+A) A$(I+INT(X/2)+W): L=L+1
114Ø   IF L=14 GOSUB 143Ø ELSE IF I+Z>X/2 THEN PRINT: GOTO 116Ø
115Ø  NEXT
116Ø IF FP THEN 14ØØ ELSE 146Ø
12ØØ  FOR I=P+1 TO X'                          PRT 3 COL'S
1211   PRINT TAB(3) A$(I) TAB(3+A) A$(I+C) TAB(3+A+A) A$(I+C+C)
122Ø  IF I=P+C RETURN ELSE NEXT
13ØØ  FOR I=P+1 TO X'                          PRT 4 COL'S
1311   PRINT TAB(1) A$(I) TAB(1+A) A$(I+C) TAB(1+A+A) A$(I+C+C) TAB(1+(3*A))
A$(I+(3*C))
132Ø  IF I=P+C RETURN ELSE NEXT
14ØØ CMD"Z","OFF": FP=Ø'                          PRINT END
1411 PRINT: PRINT TAB(35) "Press <ENTER> for menu."
1421 IF INKEY$<>E THEN 142Ø ELSE 1ØØ
143Ø PRINT TAB(34) "Press <SPACEBAR> to continue.";: L=Ø
144Ø K=INKEY$: IF K=S THEN PRINT CHR$(27) CHR$(3Ø): RETURN
145Ø IF K=E THEN 1ØØ ELSE 144Ø
146Ø PRINT " Last listing.  Press <SPACEBAR> to repeat, <ENTER> for menu.";: L=Ø
147Ø K=INKEY$: IF K=S THEN 8ØØ ELSE IF K=E THEN 1ØØ ELSE 147Ø
15ØØ OPEN "I",1,F$: INPUT#1,A$(Ø): IF N THEN X=Ø'                LOAD LIST
1511 Y=VAL(A$(Ø)): IF X+Y>5ØØ THEN CLOSE: GOTO 24ØØ
152Ø  FOR I=X+1 TO 5Ø1: INPUT#1,A$(I): IF EOF(1) THEN 153Ø ELSE NEXT
```

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```
153Ø CLOSE: B=1: IF N THEN 161Ø
154Ø X=X+Y: A$(Ø)=STR$(X): CLS: CMD"O",X,A$(1)
155Ø PRINT @131, "The list `"F$"' has been added to `"FR$"' and sorted."
156Ø PRINT: PRINT "  Do you want to <S>ave it under `"FR$"', or a <N>ew name ?"
157Ø K=INKEY$: IF K="" THEN 157Ø ELSE GOSUB 35ØØ
158Ø IF K="S" THEN F$=FR$: GOTO 16ØØ ELSE IF K<>"N" THEN 157Ø
159Ø PRINT: LINEINPUT "    Enter the new filename: "; F$: IF F$="" THEN 1ØØ
16ØØ GOSUB 17ØØ: GOTO 8ØØ
161Ø X=VAL(A$(Ø)): CLS
162Ø PRINT @135, "The list `"F$"' with "A$(Ø)" items has been loaded."
163Ø PRINT: RETURN
17ØØ OPEN "O",1,F$'                                SAVE LIST
171Ø  FOR I= Ø TO X+3: PRINT#1,A$(I): NEXT: CLOSE
175Ø CLS: F=Ø: PRINT @2ØØ, "The list `"F$"' has been stored with" X "items."
176Ø GOSUB 37ØØ: CLS: RETURN
18ØØ PRINT " Use <UP>, <DOWN> arrow for next listing, <D> to delete item,"' DEL
181Ø PRINT TAB(16) "<ENTER> when finished deleting.": J=1
182Ø PRINT STRING$(63,CHR$(95)): POKE 16916,4: G=VAL(A$(Ø))
183Ø PRINT @387, "Items number 1 to"G: Q=Ø
184Ø PRINT @515,;: INPUT "# of Item to be deleted "; Q: IF Q=Ø THEN 1ØØ
185Ø IF Q>G THEN PRINT CHR$(27) CHR$(3Ø);: GOTO 184Ø
186Ø CLS: PRINT @36Ø, "List has "G" items."
187Ø IF Q<1 THEN POKE 16916,Ø: CLS: X=G: GOTO 11Ø ELSE IF Q=G+1 THEN 194Ø
188Ø PRINT @515, "Item # "Q": ";: PRINT A$(Q)
189Ø K=INKEY$: IF K="" THEN 189Ø ELSE GOSUB 35ØØ
19ØØ IF K=E THEN PRINT: GOTO 197Ø ELSE IF K="D" THEN 192Ø
191Ø IF K=D THEN Q=Q+1: GOTO 186Ø ELSE IF K=U THEN Q=Q-1: GOTO 186Ø ELSE 189Ø
192Ø  F=1: G=G-1: FOR H=Q TO G: PRINT @35Ø, "*": A$(H)=A$(H+1): PRINT @35Ø, " "
193Ø  NEXT: A$(G+1)="": Y=G: GOTO 186Ø
194Ø PRINT: PRINT "  End of list.  Do you want back <UP>, <P>rint or <M>enu?"
195Ø K=INKEY$: IF K="" THEN 195Ø ELSE GOSUB 35ØØ
196Ø IF K=U THEN 191Ø ELSE IF K<>"P" AND K<>"M" THEN 195Ø
197Ø POKE 16916,Ø: A$(Ø)=STR$(G): X=G: IF F=1 GOSUB 17ØØ: GOTO 8ØØ
198Ø IF K="P" THEN 57Ø ELSE IF K="M" OR K=E THEN 1ØØ
2ØØØ PRINT: PRINT'                                 MESSAGES
2Ø1Ø PRINT "  With"V"columns selected, less then"M"items are not printed!"
2Ø2Ø PRINT TAB(15) "And you have only"X"entries!": GOSUB 37ØØ: GOTO 26ØØ
21ØØ PRINT "Enough! Program is only set up for 5ØØ entries!"
211Ø PRINT "Press <ENTER> to start sorting."
212Ø IF INKEY$<>E THEN 212Ø ELSE 7ØØ
22ØØ CLS: PRINT @2Ø5, "No list to rearrange in memory!": GOTO 26ØØ
23ØØ CLS: PRINT @2Ø5, "No list to merge with in memory!": GOTO 26ØØ
24ØØ PRINT "Combined files would be longer then permitted!": GOTO 26ØØ
25ØØ CMD"E": RESUME 251Ø
251Ø IF F=1 THEN PRINT "> "F$" < !  ";
252Ø PRINT "Enter the proper filename: ";: F$="": GOTO 33Ø
26ØØ GOSUB 37ØØ: GOTO 1ØØ
3ØØØ Z=PEEK(&H37E8): IF Z=63 THEN CMD"Z","ON": RETURN'            SUBS
3Ø1Ø PRINT @328, "Printer is not ready! Correct, then press <P>."
3Ø2Ø K=INKEY$: IF K="" THEN 3Ø2Ø ELSE GOSUB 35ØØ
3Ø3Ø IF K=E THEN 1ØØ ELSE IF K="P" THEN PRINT: GOTO 3ØØØ ELSE 3Ø2Ø
31ØØ IF I=Ø THEN 1ØØ ELSE PRINT TAB(35) "Are you ready to sort? (Y/N)"
311Ø K=INKEY$: IF K="" THEN 311Ø ELSE GOSUB 35ØØ
312Ø IF K="N" RETURN ELSE IF K="Y" THEN 7ØØ ELSE 311Ø
32ØØ IF V=1 AND X<3 OR V=2 AND X<4 OR V=3 AND X<6 OR V=4 AND X<8 THEN 2ØØØ
321Ø RETURN
```

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```
33ØØ PRINT TAB(7) "(Permissible entry length will be indicated by a: " CHR$(94)"
)": RETURN
34ØØ IF X=Ø THEN PRINT @711,; ELSE PRINT @391,;
341Ø PRINT "(no length restrictions for 1 Column printing.)      "
342Ø IF B RETURN ELSE GOSUB 37ØØ: RETURN
35ØØ IF ASC(K)<123 AND ASC(K)>96 THEN K=CHR$(ASC(K)-32): RETURN ELSE RETURN
36ØØ CLS: PRINT @8Ø, V "column printing is selected.": RETURN
37ØØ  FOR T=1 TO 15ØØ: NEXT: RETURN
```

Program listing number four.

COMBLIST/PGM
by Henry H. Herrdergen

```
1 'COMBine LISTs, sorts while reading from 2 sorted files. By H. H. Herrdegen,
(86 1Ø 3Ø), 88 Ø9 12 .
1Ø CLEAR1ØØØ:CLS:DEFSTRA-C:DEFINTD,E
11 PRINT@133,"Combine sorted Lists 1 and 2 to make sorted list 3":PRINT
12 LINEINPUT"    Name of List 1: ";AL
13 LINEINPUT"    Name of List 2: ";BL:PRINT
14 LINEINPUT"New combined List 3:  ";CL
15 OPEN"I",1,AL:OPEN"I",2,BL:OPEN"O",3,CL
16 INPUT#1,A:INPUT#2,B:C=STR$(VAL(A)+VAL(B)):PRINT#3,C:PRINT C
17 E=VAL(A)-VAL(B):IFE<ØTHENE=-(E)
18 A="":B="":INPUT#1,A:INPUT#2,B
19 IFA<B GOSUB25ELSE21
2Ø INPUT#1,A:IF A=""THEN22ELSE19
21 GOSUB26:INPUT#2,B:IFB=""THEN23ELSE19
22 GOSUB26:FORI=1TOE:INPUT#2,B:IFB=""THEN24ELSEGOSUB26:NEXT:GOTO24
23 GOSUB25:FORI=1TOE:INPUT#1,A:IFA=""THEN24ELSEGOSUB25:NEXT
24 CLOSE:END
25 PRINT#3,A:D=D+1:PRINTD;A:A="":RETURN
26 PRINT#3,B:D=D+1:PRINTD;B:B="":RETURN
```

Program listing number five.

PGMREC/PGM
by Henry H. Herrdegen

```
1 '`ProGraM RECord' H.H.H.  (84 Ø9 23) 88 Ø3 27. Multiple Lists, disk stored:
2 'listing pgm name, disk # and remarks, alpha sorted.     On Disk:.
1Ø   CLS: CLEAR 25ØØØ: DEFSTR A-H,K-M,R-U: DEFINT N: DIM S(4ØØ)'    INITIATE
2Ø   UP=STRING(2,27): A="max --> "+CHR$(94): BU=CHR$(8): E=CHR$(13): D=CHR$(1Ø)
3Ø   ST=STRING$(64,45): LN="What is the Name ": FZ=" ? ": CL=CHR$(3Ø)
4Ø   M="Name of Record to be ": T="P R O G R A M R E C O R D": UA=CHR$(91)
5Ø   DT=MID$(TIME$,7,2)+" "+LEFT$(TIME$,2)+" "+MID$(TIME$,4,2): BL=CHR$(95)
6Ø   PRINT TAB(15) T TAB(55) DT: PRINT ST
7Ø   PRINT @386, LN "of the List to be loaded" FZ;: LINEINPUT H
8Ø   ON ERROR GOTO Ø: IF H="" THEN 4ØØ ELSE CLS: GOSUB 12Ø: L=H: GOTO 3ØØ
1ØØ  PRINT BL;: GOSUB 28Ø: K=INKEY$: IF K="" THEN PRINT BU;: GOSUB 28Ø: GOTO 1ØØ
11Ø  Y=ASC(K): IF Y>96 AND Y<123 THEN Y=Y-32: K=CHR$(Y): RETURN ELSE RETURN
12Ø   FOR V=1 TO LEN(H): O=ASC(MID$(H,V,1)): IF O>96 AND O<123 THEN O=O-32
```

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```
13Ø   MID$(H,V,1)=CHR$(O): NEXT: O=ASC(LEFT$(H,1)): IF O>64 AND O<91 RETURN
14Ø  PRINT: PRINT TAB(25) "Not a valid Name!": H="": J=Ø: GOSUB 27Ø: CLS: RETURN
15Ø  LPRINT TAB(7Ø) "cont'd." STRING$(9,1Ø): Q=Ø: P=P+1
16Ø  LPRINT TAB(1Ø) T ". List: " L TAB(6Ø) DT TAB(7Ø) "pg. " P: LPRINT
17Ø  LPRINT "Program:" TAB(13) "on Disk:" TAB(29) "Contents:": LPRINT: RETURN
18Ø  IF F="" THEN 4ØØ
19Ø   FOR X=1 TO N: J=LEN(F): IF F=LEFT$(S(X),J) RETURN ELSE NEXT
2ØØ  IF Z THEN 132Ø ELSE 157Ø
21Ø  IF LEN(C)>14 THEN PRINT "only 14 spaces available!": GOSUB 27Ø: RETURN
22Ø  IF Z THEN 137Ø ELSE 1Ø7Ø
23Ø   OPEN"O",1,L: FOR I=Ø TO N: PRINT#1,S(I)'              STORE
24Ø   PRINT @387, "storing the new list "L" with"N"records . . ." I
25Ø   NEXT: CLOSE: W=Ø: L="": PRINT @387, CL: RETURN
26Ø  PRINT @26Ø,LN;FZ;: LINEINPUT H: IF H="" THEN 4ØØ ELSE GOSUB 12Ø: L=H:RETURN
27Ø   FOR V=1 TO 5ØØ: NEXT: RETURN
28Ø   FOR V=1 TO 1ØØ: NEXT: RETURN
3ØØ  ON ERROR GOTO 33Ø: OPEN"I",1,L: INPUT#1,S(Ø): N=VAL(S(Ø))'      LOAD
31Ø   FOR I=1 TO N: PRINT @392, "Loading list "L" with"N"records . . . " I
32Ø   INPUT#1,S(I): NEXT: CLOSE: GOSUB 27Ø: GOTO 4ØØ
33Ø  PRINT @39Ø, "No such File on disk. Check your records !";: L=""
34Ø  GOSUB 27Ø: GOSUB 27Ø: PRINT @39Ø, CL: RESUME 7Ø
4ØØ  POKE 16916,Ø: CLS: Z=Ø: PRINT TAB(18) T TAB(55) DT'          MENU
41Ø  PRINT ST: PRINT " Press <KEY> to . .": IF L="" THEN L="---": N=Ø
42Ø  PRINT TAB(18) "<S>ee the list "L" on screen,"
43Ø  PRINT TAB(18) "<P>rint hardcopy,"
44Ø  PRINT TAB(18) "<A>dd to the list,"
45Ø  PRINT TAB(18) "<C>ange a Disk Code,"
46Ø  PRINT TAB(18) "<D>elete from the list,"
47Ø  PRINT TAB(18) "<L>oad an other List,"
48Ø  PRINT TAB(18) "<M>ake a new List, (or rename exising one.)": PRINT
49Ø  PRINT TAB(18) "<E>nd and stay in BASIC,"
5ØØ  PRINT TAB(14) "or e<X>it to TRSDOS.": PRINT TAB(19);: GOSUB 1ØØ
51Ø  IF K="P" THEN 8ØØ ELSE CLS: IF K="S" THEN 6ØØ ELSE IF K="C" THEN 13ØØ
52Ø  IF K="M" THEN 9ØØ ELSE IF K="A" THEN I=N: GOTO 1ØØØ ELSE IF K="D" THEN 15ØØ
53Ø  IF W IF K="L" OR K="E" OR K="X" GOSUB 23Ø: CLS
54Ø  IF K="L" THEN 7Ø ELSE IF K="E" THEN END ELSE IF K="X" THEN CMD"S" ELSE 4ØØ
6ØØ  PRINT @133, "Want the total list <@> or start with a letter < >"'   LIST
61Ø  PRINT @181,;: GOSUB 1ØØ: IF K="@" THEN J=1: GOTO 66Ø ELSE PRINT @181, K
62Ø  GOSUB 27Ø: IF Y<65 OR Y>9Ø THEN PRINT @295, "use a LETTER !": GOTO 65Ø
63Ø   FOR J=1 TO N: IF LEFT$(S(J),1)=K THEN 66Ø ELSE NEXT
64Ø  PRINT @267, "No record starting with this letter on file!"
65Ø  GOSUB 27Ø: GOSUB 27Ø: CLS: GOTO 6ØØ
66Ø  CLS: PRINT "  use <DOWN> ARROW for next record, <M> to return to MENU."
67Ø  PRINT ST;: PRINT " #:" TAB(5) "Program:";
68Ø PRINT TAB(18) "on Disk:" TAB(33) "Contents:" TAB(48) "("N"records.)": PRINT
69Ø  POKE 16916,4: IF N=Ø THEN PRINT "No list loaded !": GOSUB 27Ø: GOTO 4ØØ
7ØØ   FOR I=J TO N: PRINT BU; I TAB(5) S(I)
71Ø   GOSUB 1ØØ: IF K=D THEN NEXT ELSE IF K="M" THEN 4ØØ ELSE PRINT BU;:GOTO 71Ø
72Ø  PRINT BU "   This was the last Program listed."
73Ø  PRINT "  <ENTER> will start the list on top, <M> returns to MENU. ";
74Ø  GOSUB 1ØØ: IF K=E THEN CLS: J=1: GOTO 69Ø ELSE IF K="M" THEN 4ØØ ELSE 74Ø
8ØØ  X=PEEK(&H37E8): IF X=63 THEN PRINT @9Ø1, CL: GOTO 83Ø'        PRINT
81Ø  PRINT @9Ø1, "Printer not ready! Correct & continue."
82Ø  PRINT @851,;: GOSUB 1ØØ: GOTO 51Ø
83Ø  P=1: PRINT @9Ø1, "List "L" is being printed . . . .": GOSUB 16Ø: X=1: Q=Ø
84Ø   FOR I=X TO N
```

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```
85Ø   IF I/5Ø=INT(I/5Ø) AND N-I<4 THEN LPRINT S(I): Q=Q+1: NEXT: GOTO 88Ø
86Ø   LPRINT S(I): Q=Q+1: IF I=N THEN LPRINT: GOTO 88Ø
87Ø   IF I/5Ø = INT(I/5Ø) THEN LPRINT: LPRINT: GOSUB 15Ø: NEXT ELSE NEXT
88Ø  LPRINT "End of list,"N"items.": LPRINT STRING$((86-Q),1Ø): GOTO 4ØØ
9ØØ  PRINT @132, "Make a <N>ew List or <R>ename the List in memory ? ";'NEW/REN
91Ø  GOSUB 1ØØ: PRINT BU; K: IF K<>"N" AND K<>"R" THEN 4ØØ
92Ø  IF K="R" GOSUB 26Ø: W=1: GOTO 4ØØ ELSE IF W GOSUB 23Ø
93Ø   FOR I=Ø TO N: S(I)="": NEXT: N=Ø: I=Ø: GOSUB 26Ø
1ØØØ CLS: PRINT "  Record #:" I+1: N=I: IF I=4ØØ THEN 12ØØ'          ADD
1Ø1Ø PRINT @128, "enter Filename: ": PRINT TAB(14) "(12) " A
1Ø2Ø PRINT TAB(16) UP; CL;: LINEINPUT H: IF H="" THEN 4ØØ
1Ø3Ø IF LEN(H)>12 THEN PRINT "too long for filename!": GOSUB 27Ø: GOTO 1Ø1Ø
1Ø4Ø GOSUB 12Ø: IF H="" THEN 1ØØØ ELSE F=H
1Ø5Ø PRINT @192, "enter Disk Code(s): ": PRINT TAB(2Ø) "(14) " A
1Ø6Ø PRINT TAB(2Ø) UP; CL;: LINEINPUT C: GOSUB 21Ø: GOTO 1Ø5Ø
1Ø7Ø PRINT @256, "enter Rem's: "
1Ø8Ø PRINT "no comma's!" TAB(2Ø) UA " screen (3Ø) " A CHR$(93) "    (5Ø) " A
1Ø9Ø PRINT TAB(13) UP; CL;: LINEINPUT R
11ØØ IF LEN(R)>5Ø THEN PRINT "too many character's !": GOSUB 27Ø: GOTO 1Ø7Ø
111Ø V=13-LEN(F): U=STRING$(V,32): V=15-LEN(C): B=STRING$(V,32)
112Ø S(I+1)=F+U+C+B+R: PRINT: C="": PRINT @453,;
113Ø PRINT "correct entries ? (no comma!) ?  (Y/N):": PRINT TAB(5) S(I+1)
114Ø PRINT @493,;: GOSUB 1ØØ: IF K<>"Y" AND K<>"N" THEN 114Ø ELSE PRINT @493, K;
115Ø IF K="N" THEN 1ØØØ ELSE I=I+1: PRINT @714, "more additions ? (Y/N): ";
116Ø GOSUB 1ØØ: IF K="Y" THEN 1ØØØ ELSE IF K<>"N" PRINT BU;: GOTO 116Ø
117Ø N=I: S(Ø)=STR$(N): W=1: CLS
118Ø PRINT @39Ø, "sorting the new "L" list ("N"records ) . . ."
119Ø CMD"O",N,S(1): GOSUB 27Ø: GOTO 4ØØ
12ØØ PRINT @197, "File full. No more additions possible!": GOSUB 27Ø: GOTO 117Ø
13ØØ PRINT @7Ø, M;: LINEINPUT "changed ? "; H: IF H="" THEN 4ØØ'      CHANGE
131Ø GOSUB 12Ø: IF H="" THEN 13ØØ ELSE F=H: Z=1: GOSUB 18Ø: GOTO 133Ø
132Ø PRINT @98,;: GOSUB 14Ø: GOTO 13ØØ
133Ø F="": PRINT @192, S(X): G=S(X)
134Ø PRINT @323, "change Disk Code to: ": PRINT TAB(24) "(14) " A
135Ø C="": PRINT TAB(24) UP; CL;: LINEINPUT C: IF C="" THEN 4ØØ
136Ø GOSUB 21Ø: GOTO 134Ø
137Ø V=15-LEN(C): U=STRING$(V,32): MID$(G,14,15)=C+U
138Ø PRINT @451, "is it correct ? (Y/N):": PRINT G: PRINT @474,;
139Ø GOSUB 1ØØ: IF K="Y" THEN W=1: S(X)=G: G="": CLS: GOTO 13ØØ
14ØØ IF K<>"N" THEN PRINT BU;: GOTO 139Ø ELSE PRINT @512, CHR$(31): GOTO 133Ø
15ØØ PRINT TAB(9) "<D>elete item, <ENTER> when finished deleting."'    DELETE
151Ø PRINT "  If not right record, use <DOWN> or <UP> ARROW for next item,"
152Ø PRINT "if counter stops, then I'm looking for stringspace - be patient!";
153Ø PRINT ST: POKE 16916,5: X=1: N=VAL(S(Ø))
154Ø CLS: PRINT @296, "List has "N"items.": F=""
155Ø PRINT @39Ø, M;: LINEINPUT "deleted ? "; H: IF H="" THEN 4ØØ
156Ø GOSUB 12Ø: F=H: GOSUB 18Ø: GOTO 158Ø
157Ø PRINT @424,;: GOSUB 14Ø: GOTO 154Ø
158Ø F="": PRINT @512, CHR$(31)  "Item # "X": " S(X)
159Ø GOSUB 1ØØ: PRINT BU;: IF K=D THEN X=X+1: IF X>N THEN 164Ø ELSE 158Ø
16ØØ IF K=E THEN PRINT: GOTO 4ØØ ELSE IF K="D" THEN W=1: N=N-1: GOTO 162Ø
161Ø IF K=UA AND X>1 THEN X=X-1: GOTO 158Ø ELSE 159Ø
162Ø  FOR I=X TO N: PRINT @369, I: S(I)=S(I+1): NEXT
163Ø S(Ø)=STR$(N): S(N+1)="": X=X-1: IF X<1 THEN X=1: GOTO 154Ø ELSE 154Ø
164Ø PRINT: PRINT TAB(7) "End of list. Do you want back <UP> or <M>enu ? ";
165Ø GOSUB 1ØØ: IF K=UA THEN X=X-1: PRINT @775, CL: GOTO 161Ø
166Ø IF K="M" THEN 4ØØ ELSE 165Ø
```

Classified Computer News 80 Classified

The following Radio Shack Color Computer II system is being offered for sale.

HARDWARE:
Radio Shack Color Computer II
FD-501 Disk Drive Controller
2 Floppy Disk Drives
Amdek Color 300 Monitor
Multi-Pak Interface
Deluxe RS-232 Program Pak
Modem 1B
DC-2212 Modem
TRS-80 X-Pad
2 Deluxe Joy Sticks
CCR-81 Data Cassette Recorder
Botek CCP-2 Serial to Parallel
Radio Shack Power Strip

SOFTWARE:
Cash Budget Management
Color Disk EDTASM
OS-9 1.01.00
OS-9 C Compiler
OS-9 TRS-Copy
Coco Max
10 disks of Public Domain Software including MIKEYTERM

ROM PACKS:
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Canyon Climber
Dungeons of Daggorath
Galactic Attack
Spidercide
EDTASM +

MISCELLANEOUS:
Program Pak File
Coco II Service Manual
Assembly Language Programming

All cables and covers are included in this package. **I WILL NOT SELL INDIVIDUAL ITEMS. THIS IS FOR SALE AS A PACKAGE DEAL ONLY!**
Asking price is $400 or best offer. Price does not include shipping.

CONTACT:
Tim Sewell
P.O. Box 322
Van Nuys, Ca. 91401
(818) 766-7982 (voice)
5pm to 9pm Pacific time.

SALESMAN'S ACCOUNT BOOK for the Model 4 with 2 disk drives. Holds 864 accounts with as many as 2,664 names and/or comments. For disk and user's manual, send $39.95 to GSC, 11487 Bellatrix Ct., San Diego, CA 92126. A demo disk is available for $5.00 For more information, write to GSC at the above address.

PERSONAL ADDRESS BOOK for the Model 4 with 2 disk drives. Holds 1,128 addresses. Allows user to include multiple lines of notes with any address. For disk and users's manual, send $19.95 to GSC, 11487 Bellatrix Ct., San Diego, CA 92126. A demo disk is available for $3.50. Questions? Write GSC.

I WANT TO BUY A 4P. I want a TRS80 Model 4P. Do you have one in good working condition to sell? PLEASE write me. Dick Burwell, Box 208, Gorham, NH 03581. Have a good day!

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Public Domain programs FOR TRS-80 Models 3 & 4 FREE Disc Catalogs over 1500 programs Please indicate systems. The JaRick Company, P.O. Box 22708, Robbinsdale, MN 55422 Drop us a line.

WANTED: Radio Shack Computer line catalogs (or photocopies) from the introduction of the Model III thru '86. Write Jim Ahern, 1677 Colonial Way, Frederick, MD 21801, or call me at (301) 694-4919.

XCEL/CMD ===> A speed utility designed to function on the TRS-80 model 4 under the LS-DOS 6.3, LS-Dos 5.3, NEWDOS/80 and NEWDOS/80 2.0 operating systems. Note: You must have HI TECH, Inc,'s XLR8er board installed. XCEL/CMD replaces the original set180, filter, and fixall/flt commands which are used to boot the XLR8er board into high gear. This speed utility is available for only $15.00 (shipping and handling included). Send certified check or money order to **ASCI INTELLIGENT SYSTEMS,** 20192 GRIGGS, DETROIT, MI 48221-1010. **(313) 342-7142..6 P.M.**

WANTED TO BUY - Disk Version of Gordon Hatton's Instant Sort/Search Data Base. Also Known as "ISS". Published by Acorn Software Products. For Model I/III.
H.R. Stellberg, P.O. Box 844, Bellville, TX 77418

FOR SALE: TWO (2) Model 4P systems with Powertype and TRP-100 printers Software, 1 Hi-Res Bd/modem, multi-Dos's, Training Disks, MORE. Don @ MGS, Inc., Box 1322, Baton Rouge, LA 70821. (504)295-1389. Must Sell.

Classified Computer News 80 Classified

WANTED TO BUY: Model 4 TRS-80. State #K memory, gate-non gate array, blk or green screen and price. Do not need docs, condition of drives unimportant. Also, want hard disc unit. Indicate size, condition, cost. Write Ray Crank, 354 S. Elm, Webster Groves, MO 63119.

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FOR SALE: Used Tandy DT-1 Data Terminals $150 each or 2 for $200. F.O.B. Jersey City, NJ. Call Dennis at 201-432-0800.

SOFTWARE FOR SALE-MODEL III/4-Accounts Payable, Formation; Model III - pfs:report,Scripsit/Cassette, Dow Jones Market Analyzer. $25 each plus $5 shipping. All have manuals. Call Bob Holfelder @ 216-984-2712.

WANTED TO BUY a new or used Model III keyboard. It can't be like the one I've got where half the keys don't work. Also, I have FOR SALE, a Radio Shack Modem I for the Model III with Executive Videotex Software for $69.00. John M. Lewis, PO Box 337, Twisp, WA 98856.

M-4 SOFTWARE: R.S. Assembler; C-Compiler; Pascal; Deskmate; Videotex Plus; General Ledger (26-1540). $25. each. New w/original documentation. JRP, 7017 Fairfax, Littleton, CO 80122. 303-721-9707.

FOR SALE: INK JET PRINTER, Olivetti PR2300, like new for $100. Durward Boyles, PO Box 274, Brent, AL 35034

BRINGUP ACCOUNTING: Be organized in 1989! Prints monthly report of mileage and three other accounting areas. MISOSYS PRO-WAM required. Send $15 check. J Peet, 7017 Fairfax, Littleton, CO 80122.

MODEL 100 FOR SALE - extra 24K memory, phone & printer cables, AC power supply, technical manual, notes, and article copies - $300 or best offer - HALF BAKED ENTERPRISES (503)742-4115.

FOR SALE Complete set of 80-Micro magazine. 101 issues in all. Asking $100 /OBO plus shipping. Contact: Don Morrow, 11304 Baja Dr., Albuquerque, NM 87111, 505-294-8090

SOFTWARE, which is "used" but complete w/original media and documentation. Model 1/3: R/S Series I Editor/Assembler (Tape); R/S Assembly Language Tutor (Tape). Model III: The Home Accountant - Disk (Continental Software). This works only on 48K, 2-drive Model III's (or Mod 4 in the III mode) and only with TRSDOS 1.3 BASIC (won't work w/LDOS's LBASIC). I would like to dicker or trade. Contact: Don O. Coffin, 2517 N. 62nd St., Mesa, AZ 85205.

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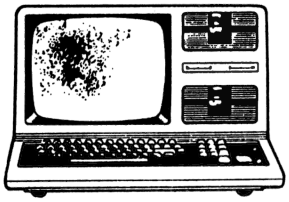

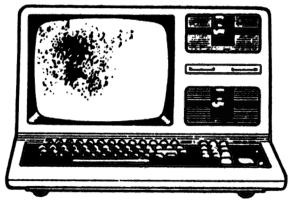

DOUBLE 4D SWEEPSTAKES

WIN TWO MODEL 4D'S

Here is your chance for you and a friend to both win a brand new, never used - right out of the box Model 4 D TRS-80 computer. To enter just have your computer friend subscribe to Computer News 80 and enter your name along with his in the contest drawing to be held on May 1, 1988.

Winners will be announced in the June issue of CN80.

Offical Entry Form

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See Contest Rules on Following Page

DOUBLE 4 D SWEEPSTAKES CONTEST RULES

One combination of a new subscriber and his current subscriber partner will be drawn at random on May 1st, 1988 as the winning combination of subscribers, and each will receive one new Model 4D Tandy/Radio Shack computer. Both subscriptions must be paid at the time of the drawing. Entries must be made on the official entry form and will be entered in the contest at the time the new subscribers order and payment is received. No changes in the name combination will be allowed after the entry form has been received along with payment and entered in the drawing. New subscribers may in turn be entered as a current subscriber by another new subscriber. But, to be eligible for the drawing both names must be on the official entry form. The official entry form may be copied and current subscribers may be entered as many times as they wish as long as each entry contains the name of a different new subscriber. New subscriptions received which are not on the official entry form, and who do not have a current subscriber partner named are not eligible to be entered in the Double 4D Sweepstake drawing. Two new subscribers entered on the same form are not eligible for the Double 4 D Sweepstake drawing. Winners will be responsible for any local, state, or federal tax, custom charges and for additional shipping costs outside of continental United States.

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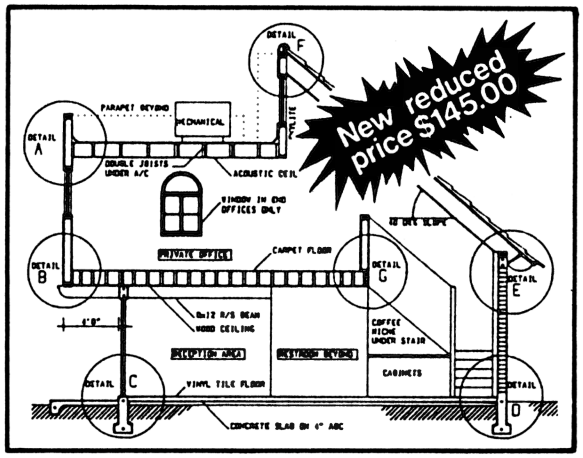

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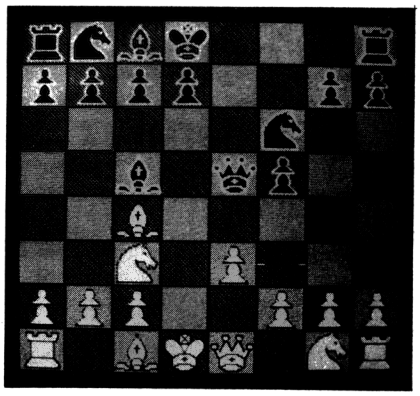

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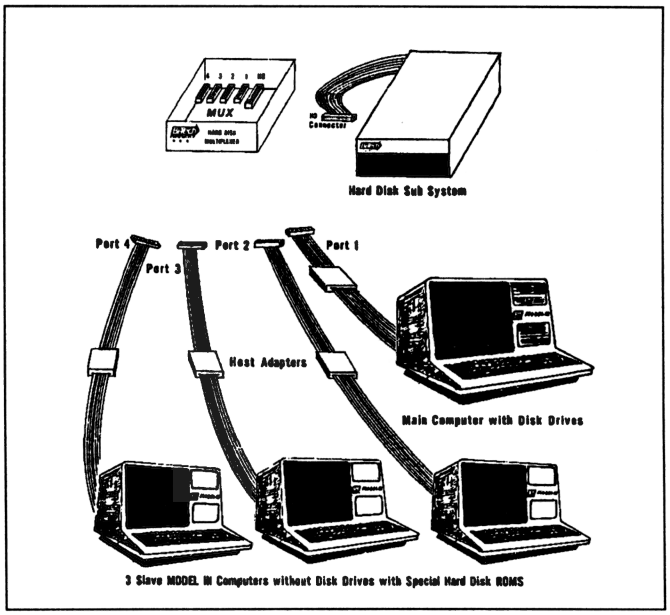

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Can we talk? CP/M vs TRSDOS

By moving to CP/M on your Model 4 you achieve two things. First you open the door to a wealth of existing software. More 8-bit software runs under CP/M than any other operating system. This includes virtually all of the "big name" programs which have set the standards by which all others are measured. Programs like **WordStar, dBASE II, and Turbo Pascal** are available for CP/M, but not TRSDOS. Public domain software, almost unknown under TRSDOS, fills hundreds of megabytes of disk space. Valuable public domain programs like the **Small C Compiler** are just a toll-free phone call away. Most importantly, hundreds of applications programs are available from a multitude of vendors. Many include the source code. Wouldn't you like to be able to choose from scores of Accounts Receivable or General Ledger programs, instead of the meager selection you now have?

What about the future?

When the time comes to move up to another computer it will almost certainly use MS-DOS. That's when CP/M users get a pleasant surprise. Since MS-DOS was a derivative of CP/M it operates in almost the same manner. Even better, most of the same software packages are available in 16-bit form and they operate in virtually the same way that they did under CP/M.

Is it easy to use?

Montezuma Micro's CP/M has been carefully crafted to present a maximum of features while taking a minimum of memory. It supports all of the standard features of the Model 4/4P/4D computers, as well as most of the optional ones. Our CP/M has been consistently been awarded the highest ratings in industry magazines. It is version 2.2, the most popular and reliable of all the versions of CP/M produced. Our CP/M has been made as easy to use as possible. All customer-selected features are chosen from simple menus in our CONFIG utility. This includes the ability to configure a disk drive to run like that of scores of other CP/M computers for maximum ease of software portability. Using the unique DBLCROSS program in our Monte's Toolkit utility package you can move files back and forth between CP/M, TRSDOS (1.3 and 6.x), and MS-DOS.

Why use Montezuma CP/M?

We have already told you why our CP/M is the best for the Radio Shack Model 4 computer. The only question left to answer is "Why buy CP/M at all?" Radio Shack has abandoned TRSDOS — all of their new machines use MS-DOS. Most of the software producers have followed, leaving no new software development and saddling the TRSDOS user with whatever software "leftovers" he can find. Which DOS do you want to head into the future with: the one originally written for the Model I or the one that served as the basis for MS-DOS? Make the right choice right now for just $169.

If I need support?

We don't forget you after the sale. If you have a problem you will find our phones are answered by people, not answering machines or hold buttons. Our philosophy is very simple — we want you to be happy and satisfied with your purchase. If you have a problem then we have a problem, and we'll do whatever we can to resolve it.

Cost to update?

Our owners are protected against instant obsolescence by our lifetime upgrade policy. At any time you can return your original CP/M disk to be upgraded to the latest version free of charge, except for a small shipping and handling fee. Periodically we publish NEW STUFF, a newsletter for registered users of Montezuma Micro CP/M. This publication carries news about new products, tips for getting more out of CP/M, and other valuable information for our users. It is sent free of charge to registered owners.

Can I use a hard disk drive?

CP/M hard disk drivers are available for Radio Shack, Aerocomp, and most other popular brands of hard disk drives. These drivers allow the hard drive to be partitioned into one to four logical drives of varying sizes. These drives may all be used by CP/M, or may be divided between CP/M and TRSDOS. A head-parking utility is included on the driver disk to minimize the risk of damage when the hard disk drive is not in use. Also included at no charge is a utility which will copy, compress, list, print, and delete files with ease. There isn't much you can say about a driver. It either works or it doesn't. Ours works supremely and it only costs $30.

Hard disk backup?

Unlike the high-priced, underpowered backup utilities available for backup of TRSDOS hard drives, our CP/M **HARDBACK** utility makes the backup of a hard disk to floppies quick and painless. Only **HARDBACK** gives you the choice of backing up the entire drive or only those files which it knows have been changed since the last backup. Daily backup is no longer a chore, since only new data must be copied. With **HARDBACK** you can quickly restore an entire drive, or only a single file if necessary. Only **HARDBACK** will perform a complete check of the hard disk drive and lock out tracks which have become flawed to prevent the use of those tracks for later data storage. Add this supreme program to your hard disk for just $49. Isn't your time and data worth it?

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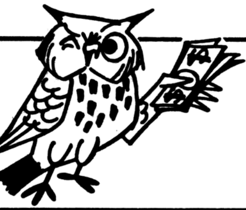

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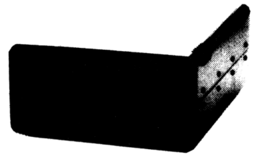

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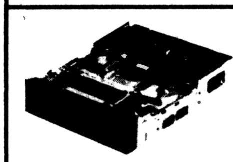

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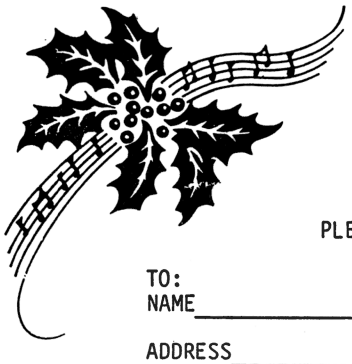

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